

DP Barcode: 436880

MRID No.: 50084901

**DATA EVALUATION RECORD  
CHRONIC TOXICITY TEST WITH THE HONEY BEE  
Non-Guideline Chronic Feeding Study**

1. **CHEMICAL:** Thiamethoxam PC Code No.: 060109

2. **TEST MATERIAL:** Thiamethoxam Technical Purity: 99.5% w/w

3. **CITATION**

Author: A. Kling

Title: Thiamethoxam - Assessment of Effects on the Adult Honey Bee, *Apis mellifera L.*, in a 10 Day Chronic Feeding Test under Laboratory Conditions

Study Completion Date: August 18, 2016

Laboratory: Eurofins Agroscience Services EcoChem GmbH/  
Eurofms Agroscience Services Ecotox GmbH  
Niefem-Oschelbronn, Germany

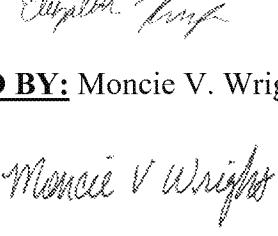
Sponsors: Syngenta Ltd  
Bracknell, Berkshire, UK

Laboratory Report ID: S16-00325

DP Barcode: 436880

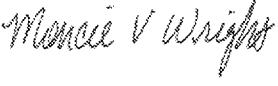
MRID No.: 50084901

4. **REVIEWED BY:** Elizabeth Krupka, Environmental Scientist, CDM/CSS-Dynamac JV

Signature: 

Date: 3/21/2017

**APPROVED BY:** Moncie V. Wright, Environmental Scientist, CDM/CSS-Dynamac JV



Signature:

Date: 4/4/2017

5. **APPROVED BY:** Ryan Mroz, Biologist, OPP/EFED/ERB-5

Signature: 

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2019.12.11  
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Date:

**6. DISCLAIMER:** *This Data Evaluation Record may have been altered by the Environmental Fate and Effects Division subsequent to signing by CDM/CSS-Dynamac JV personnel.* This document provides guidance for EPA and PMRA reviewers on how to complete a data evaluation record after reviewing a scientific study concerning the toxicity of a pesticide to honey bees following chronic feeding exposure. It is not intended to prescribe conditions to any external party for conducting this study nor to establish absolute criteria regarding the assessment of whether the study is scientifically sound and whether the study satisfies any applicable data requirements. Reviewers are expected to review and to determine for each study, on a case-by-case basis, whether it is scientifically sound and provides sufficient information to satisfy applicable data requirements. Studies that fail to meet any of the conditions may be accepted, if appropriate; similarly, studies that meet all of the conditions may be rejected, if appropriate. In sum, the reviewer is to take into account the totality of factors related to the test methodology and results in determining the acceptability of the study.

## **7. STUDY PARAMETERS**

**Test Species:** Honey bees (*Apis mellifera*)

**Age of Test Organisms at Test Initiation:** 1-2 days old

**Exposure Duration:** 10 days

## **8. CONCLUSIONS:**

The honey bee, *Apis mellifera* L., was exposed to **Thiamethoxam Technical** for 10 days in a feeding study at measured dietary doses (based on actual uptake) of 1.17, 1.85, 2.51, 4.87, and 7.26 ng ai/bee/day. The doses were equivalent to measured dietary concentrations of 35.7, 68.0, 120, 212, and 392 µg ai/kg diet, respectively.

After 10 days, mortality was 5, 0, 12.5, 72.5, and 100% in the measured 35.7, 68.0, 120, 212, and 392 µg ai/kg treatment groups, respectively, as compared to 7.5% in the negative control. One moribund bee was observed in the measured 392 µg ai/kg diet group on Day 1. Affected bees were observed at all treatment levels, with the exception of the 35.7 µg ai/kg diet treatment level.

Based on the dietary concentrations, the 10-day LC<sub>50</sub> estimate was 180 µg ai/kg diet and the NOAEC was 120 µg ai/kg diet. For food consumption, the IC<sub>50</sub> was 230 µg ai/kg diet and the NOAEC was 35.7 µg ai/kg diet. Based on the dietary doses, the 10-day LD<sub>50</sub> estimate was 3.67 ng ai/bee/day and the NOAEL was 2.51 ng ai/bee/day. For food consumption, the ID<sub>50</sub> was 4.90 ng ai/bee/day and the NOAEL was 1.17 ng ai/bee/day.

**Dietary Concentration****Mortality**LC<sub>50</sub>: 180 µg ai/kg diet

95% C.I.: 163 – 199 µg ai/kg diet

Slope: N/A

95% C.I.: N/A

NOAEC: 120 µg ai/kg diet

LOAEC: 212 µg ai/kg diet

**Food Consumption**IC<sub>50</sub>: 230 µg ai/kg diet

95% C.I.: 147 – 359 µg ai/kg diet

Slope: N/A

95% C.I.: N/A

NOAEC: 35.7 µg ai/kg diet

LOAEC: 68.0 µg ai/kg diet

**Dietary Dose****Mortality**LD<sub>50</sub>: 3.67 ng ai/bee/day

95% C.I.: 2.39 – 5.99 µg ai/bee/day

Slope: 5.59

95% C.I.: 1.77 – 9.42

NOAEL: 2.51 ng ai/bee/day

LOAEL: 4.87 ng ai/bee/day

**Food Consumption**ID<sub>50</sub>: 4.90 ng ai/bee/day

95% C.I.: 3.31 – 7.28 µg ai/bee/day

Slope: N/A

95% C.I.: N/A

NOAEL: 1.17 ng ai/bee/day

LOAEL: 1.85 ng ai/bee/day

**9. ADEQUACY OF THE STUDY:**

This study is scientifically sound and is classified as Acceptable.

**10. GUIDELINE DEVIATIONS:**

None

**11. SUBMISSION PURPOSE:** To determine the chronic effects on growth, development and survival and sublethal effects of Thiamethoxam on the honey bee (*A. mellifera* L) larvae from chronic [repeat dose] exposure following the OECD Guidance Document.

**12. MATERIALS AND METHODS****A. Test Material**

**A. Test Organisms**

Guideline Criteria	Reported Information
<b>Species</b> Honey Bee ( <i>Apis mellifera L.</i> )	Honey bee ( <i>Apis mellifera carnica L.</i> )
<b>Age at beginning of test</b> Worker bees of uniform age.	newly hatched; 1 to 2 days old; young worker bees
<b>Source</b>	<p>Colonies were purchased from a beekeeper in Niefen-Oschelbronn, Germany (Klaus Hampel, Eutinger Straße 24, 75223 Niefern-Oschelbronn, Germany).</p> <p>Brood combs with capped cells were taken out of a honeybee colony, transferred into the climatic chamber, and kept under test conditions.</p>
<b>Were bees from diseased-free colonies?</b>	Yes. Bees were collected from healthy, disease-free, and queen-right colonies.
<b>Were bees kept in conditions conforming to proper cultural practices?</b>	Bees were taken from hives that had not received treatments with chemical substances for at least one month. The colonies were examined for reportable bee epidemics by an authorized bee specialist and were inspected periodically according to the standard bee-keeping practices by an experienced apiarist.

Guideline Criteria	Reported Information
<b><u>Acclimation conditions</u></b>	One day prior to test start, newly hatched worker bees (0-1 day old) were transferred to test cages and acclimated to test conditions until the start of testing. Moribund and dead bees were replaced by healthy bees prior to test initiation.

## B. Test System

Guideline Criteria	Reported Information
<b><u>Test Chambers</u></b>	Stainless steel cages (base; 8 cm x 4 cm; height: 6 cm) equipped with a transparent pane to enable observation and the bottom of the cages were lined with perforated steel.
<b><u>Temperature during exposure</u></b>	31.3-33.5°C
<b><u>Relative humidity during exposure</u></b>	41.7-69.7%
<b><u>Lighting</u></b>	Not reported.
<b><u>Feeding</u></b>	50% (w/v) sucrose solution was provided <i>ad libitum</i> to bees using syringes

**C. Test Design**

Guideline Criteria	Reported Information
<b><u>Test material</u></b>	<p>Identity: CGA 293343 tech. ex CCT</p> <p>Synonym: Thiamethoxam Technical</p> <p>IUPAC name: 3-(2-chloro-1,3-thiazol-5-ylmethyl)-5-methyl-1,3,5-oxadiazinan-4-ylidene(nitro)amine</p> <p>CAS name: 3-[(2-chloro-5-thiazolyl)methyl]tetrahydro-5-methyl-N-nitro-4H-1,3,5-oxadiazin-4-imine</p> <p>CAS No.: 153719-23-4</p> <p>Batch/Lot No.: 222001</p> <p>Description: Tan solid</p> <p>Purity: 99.5% w/w</p> <p>Storage: Ambient temperature (5-30°C) under dark and dry conditions</p>
<b><u>Nominal application rates</u></b> The test material should be applied at the maximum proposed label rate.	<p><u>Reported by the study author:</u>  36.2, 65.2, 117.3, 211.1, and 380 µg ai/kg diet (mean daily intake doses of 1.19, 1.77, 2.45, 4.85, and 7.02 ng ai/bee/day)</p> <p><u>Adjusted for purity by the reviewer:</u>  36.0, 64.9, 117, 210, and 378 µg ai/kg diet (mean daily intake doses of 1.18, 1.76, 2.44, 4.83, and 6.98 ng ai/bee/day)</p> <p>The calculated measured dietary concentrations were 35.7, 68.0, 120, 212, and 392 µg ai/ kg diet (mean daily measured intake doses of 1.17, 1.85, 2.51, 4.87, and 7.26 ng ai/bee/day)</p>
<b><u>Dose Preparation</u></b>	The test item was mixed into a 50% (w/v) sucrose solution, and test feeding solutions were prepared fresh daily.
<b><u>Number of bees exposed</u></b>	The test comprised two control treatment groups, five test item treatment groups and one reference item

Guideline Criteria	Reported Information
	treatment group. Four replicates for each control and treatment group. Each replicate contained 10 bees each.
<b><u>Application methods</u></b>	<p>The test sucrose feeding solutions were provided <i>ad libitum</i> using plastic syringes. The feeding solution syringes were replaced daily. The bees in each cage shared the feeding solution provided.</p> <p>The feeding syringes were weighed before feeding, and the actual consumption was determined by reweighing the syringe containing the remaining test solution each day after removal from the test units.</p>
<b><u>Other experimental design information</u></b>	Additionally 8 test units without bees but with full food syringes (containing 50 % (w/v) aqueous sucrose solution or 50 % (w/v) aqueous sucrose solution containing 0.5 % acetone) were placed in the climatic chamber for evaluation of evaporation of feeding solution.
<b><u>Were bees randomly or impartially assigned to test groups?</u></b>	Yes
<b><u>Control(s)</u></b>	<p>Negative control: untreated 50% (w/v) sucrose solution</p> <p>Solvent Control: 50% (w/v) sucrose solution containing 0.5% acetone</p>
<b><u>Exposure period</u></b>	10 days
<b><u>Positive Control, (if any)</u></b>	The reference item was 420.3 g/L dimethoate (EC 400; BAS 152 11 I) tested at a nominal concentration of 0.90 mg ai/kg feeding solution.

**13. REPORTED RESULTS:**

Guideline Criteria	Reported Information
<b>Quality assurance and GLP compliance statements were included in the report?</b>	Yes
<b><u>Control mortality</u></b>	7.5% mortality was observed in both the negative and solvent control at test termination
<b>Were raw data included?</b>	Yes
<b>Were signs of toxicity (if any) described?</b>	One moribund bee was observed in the nominal 378 ug/ai/kg diet (6.98 ng ai/bee/day) group on Day 1. Affected bees were observed at all treatment levels with the exception of the 36.0 ug/ai/kg diet (1.18 ng ai/bee/day) treatment level.

**Mortality and Observations:**

Nominal Test Concentration, adjusted for % purity ( $\mu\text{g ai/kg diet}$ ) <sup>a</sup>	Number Exposed	Percent Mortality after 10 days (corrected)	Behavioral Abnormalities
<b>10-day Chronic Feeding Toxicity Test <sup>b</sup></b>			
Negative Control	40	7.5 (0)	None
Solvent Control	40	7.5 (0)	One affected bee on Day 8
Thiamethoxam technical	36.0	5.0 (-2.7)	None
	64.9	0.0 (-8.1)	One affected bee on Day 7
	117	12.5 (5.4)	Two affected bees on Day 2; Two affected bees on Day 3; Two affected bees on Day 7; One affected bee on Day 8
	210	72.5* (70.3)	Nine affected bees on Day 2; Six affected bees on Day 3; Eight affected bees on Day 4; Four affected bees on Day 5; Two affected bees on Day 6; Four affected bees on Day 7; Five affected bees on Day 8; Five affected bees on Day 9; Six affected bees on Day 10
	378	100* (100)	One moribund and five affected bees on Day 1; Two affected bees on Day 3; One affected bee on Days 4, 5, 6, and 7; All bees dead by Day 10
	0.90	92.5 (91.9)	Not reported
Reference Item, Dimethoate <sup>c</sup> (mg ai/kg feeding solution)			

<sup>a</sup> Nominal concentrations are equivalent to nominal Thiamethoxam technical mean daily intake doses of 1.18, 1.76, 2.44, 4.83, and 6.98 ng ai/bee/day, respectively.

<sup>b</sup> Data were obtained from Table 7 on page 33 and Table 21 on page 47 of the study report.

<sup>c</sup> Nominal concentration is equivalent to equivalent to a Dimethoate Concentration of 0.01 mg a.i./bee/day.

\* Significantly increased compared to solvent control (step-down Cochran-Armitage Test, one-sided greater,  $\alpha=0.05$ )

After 10 days, mortality was 5, 0, 12.5, 72.5, and 100% in the nominal treatment concentrations of 36.0, 64.9, 117, 210, and 378 µg ai/kg diet, respectively, compared to the 7.5% negative control mortality. One moribund bee was observed in the 378 µg ai/kg diet group on Day 1. Affected bees were observed at all treatment levels with the exception of the 36.0 µg ai/kg diet treatment level. The 10-day LD<sub>50</sub> was determined to be 4.33 ng ai/bee/day and the NOEDD was 2.45 ng ai/bee/day, based on the nominal dietary doses not adjusted for % purity. Based on the nominal treatment concentrations, the 10-day LC<sub>50</sub> estimate was determined to be 190 µg ai/kg diet and the NOEC was 117.3 µg ai/kg diet (based on nominal dietary concentrations, not adjusted for % purity).

Mean food consumption was 38.1 mg/bee/day for the control compared to 32.9, 27.2, 20.8, 23.0, and 18.5 mg/bee for the nominal treatment concentrations of 36.2, 65.2, 117.3, 211.1, and 380 µg ai/kg diet, respectively.

### **Reported Statistics**

The oral LDD<sub>50</sub> and LC<sub>50</sub> values were determined by the study author using a Weibull analysis. The NOEC and NOEDD and significant differences between the mortality data of the control and the test item treatment groups were determined using the Cochran-Armitage Test (one-sided greater,  $\alpha = 0.05$ ). The statistical analyses were performed using ToxRat Professional 3.2.1 software.

### **Reviewer's Statistical Verification**

Mortality and food consumption data were entered into CETIS statistical software version 1.8.7.12 with database backend settings implemented by EFED on 10/20/2015. No significant effects were observed when comparing the negative and solvent control groups using the Equal Variance t Two Sample Test.

Data were first tested for normality and homogeneity of variance using Shapiro-Wilk's ( $\alpha = 0.01$ ) and Levene's or Bartlett's ( $\alpha = 0.01$ ) tests, respectively. Mortality and food consumption data met these assumptions and were analyzed using analysis of variance followed by Dunnett's multiple comparison test.

Results are reported as the measured dietary doses (ng ai/bee/day) and measured dietary concentrations. Two separate test records were created in CETIS, with the test code reported as 50084901 conc (=dietary concentration) or 50084901 dose (=dietary dose). The reviewer attempted to use linear regression to estimate the LC/LD<sub>50</sub> values. Confidence intervals were not calculable for the results expressed as the dietary concentrations, so the Untrimmed Spearman-Kärber method was used to determine the LC<sub>50</sub>. The LD<sub>50</sub> was

determined using linear regression. The IC/ID<sub>50</sub> values for food consumption was analyzed using non-linear regression.

### **Dietary Concentration**

#### Mortality

LC<sub>50</sub>: 180 µg ai/kg diet  
Slope: N/A  
NOAEC: 120 µg ai/kg diet  
LOAEC: 212 µg ai/kg diet

95% C.I.: 163 – 199 µg ai/kg diet  
95% C.I.: N/A

#### Food Consumption

IC<sub>50</sub>: 230 µg ai/kg diet  
Slope: N/A  
NOAEC: 35.7 µg ai/kg diet  
LOAEC: 68.0 µg ai/kg diet

95% C.I.: 147 – 359 µg ai/kg diet  
95% C.I.: N/A

### **Dietary Dose**

#### Mortality

LD<sub>50</sub>: 3.67 ng ai/bee/day  
Slope: 5.59  
NOAEL: 2.51 ng ai/bee/day  
LOAEL: 4.87 ng ai/bee/day

95% C.I.: 2.39 – 5.99 µg ai/bee/day  
95% C.I.: 1.77 – 9.42

#### Food Consumption

ID<sub>50</sub>: 4.90 ng ai/bee/day  
Slope: N/A  
NOAEL: 1.17 ng ai/bee/day  
LOAEL: 1.85 ng ai/bee/day

95% C.I.: 3.31 – 7.28 µg ai/bee/day  
95% C.I.: N/A

## **14. REVIEWER'S COMMENTS:**

The reviewer obtained lower LC/LD<sub>50</sub> values than those reported by the study author, likely due to a combination of the study author using the Weibull analysis and the nominal concentrations and dietary doses. The reviewer used linear regression and the measured dietary doses to determine the LD<sub>50</sub>, and the untrimmed Spearman-Karber and measured dietary concentrations to determine the LC<sub>50</sub>. The NOAEC/NOAEL values were in general agreement, differing only because the study author used the nominal test concentrations and dietary doses. The reviewer's results are presented in the Conclusions section of this DER.

The reviewer used the measured concentrations of the test material in the diet, and applied the % recoveries to the dietary doses to obtain measured dietary doses. This chronic honey bee

study was conducted based on OECD 213 Guideline for the Testing of Chemicals on Honeybee, Acute Oral Toxicity Test (1998). There is no current U.S. EPA OCSPP guideline for chronic oral toxicity tests with honey bees.

A preliminary rangefinder test was performed under non-GLP conditions to determine the definitive dosages (results were not provided).

The validity criteria were met, and included mean control mortality of  $\leq 15\%$  and mean reference item mortality of  $\geq 50\%$  at the end of the test.

The experimental dates of this chronic adult honey bee feeding test were May 19 to July 10, 2016.

## **15. REFERENCES:**

Chemicals Act of the Federal Republic of Germany (Chemicals Act), Annex 1, in the version of the act published on July 11, 2008 (BGBl. I, p. 1146)

Commission of the European Communities, Directorate General for Agriculture (1997): Storage stability of residue samples, Appendix H, 7032A/VI/95 rev. 5

European Commission, Directorate General and Consumer Protection (2000): Residues: Guidance for generating and reporting methods of analysis in support of pre-registration data requirements for Annex II (part A, Section 4) and Annex III (part A, Section 5) of Directive 91/414. SANCO/3029/99 rev. 4, 11/07/2000.

Kling, A. & Schmitzer, S. (2015): Proposal for a new OECD guideline for the testing of chemicals on adult honey bees (*Apis mellifera L.*) in a 10 day chronic feeding test in the laboratory and results of the recent ring test 2014. Hazards of pesticides to bees - 12<sup>\*\*</sup> International Symposium of the ICP-PR Bee Protection Group, Ghent (Belgium), 15-17 September 2014. Julius-Kiihn-Archiv, 450, pp. 69-74

OECD (2016) Proposal for a new guideline for the testing of chemicals: Honey bee (*Apis mellifera L.*), chronic oral toxicity test 10 day feeding test in the laboratory, February 2016.

Schneider-Orelli, O. (1947): Entomologisches Praktikum. H.R. Sauerlander & Co., Aarau, 2. Auflage; [Schneider-Orelli, O. (1947): Entomological Practical Course. H.R. Sauerlander & Co., Aarau, 2<sup>nd</sup> Edition].

ToxRat Solutions GmbH, ToxRat Professional 3.2.1

DP Barcode: 436880

MRID No.: 50084901

United States Environmental Protection Agency (1996): Residue Chemistry Test Guidelines:  
OPPTS 860.1380 Storage Stability Data

# CETIS Analytical Report

Report Date: 03 Apr-17 21:18 (p 1 of 6)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH						
Analysis ID:		Endpoint: 10-Day Mortality Rate			CETIS Version:			CETISv1.8.7			
Analyzed:		Analysis: Parametric-Control vs Treatments			Official Results:			Yes			
Batch ID:	05-9233-5042	Test Type: 2014 Honeybee Adult Chron Oral			Analyst:						
Start Date:	18 May-16	Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water						
Ending Date:	23 Mar-17 14:02	Species: Apis mellifera			Brine:						
Duration:	309d 14h	Source: Local Apiarist			Age:						
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU		
Untransformed	NA	C < T	NA	NA	20.9%	120	212	159.5			

## Dunnett Multiple Comparison Test

Control	vs	C- $\mu$ g/kg diet	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	35.7	-0.311	2.41	0.193	6	0.9087	CDF	Non-Significant Effect	
	68	-0.933	2.41	0.193	6	0.9794	CDF	Non-Significant Effect	
	120	0.622	2.41	0.193	6	0.5934	CDF	Non-Significant Effect	
	212*	8.09	2.41	0.193	6	<0.0001	CDF	Significant Effect	
	392*	11.5	2.41	0.193	6	<0.0001	CDF	Significant Effect	

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	3.597083	0.7194167	5	55.7	<0.0001	Significant Effect
Error	0.2325	0.01291667	18			
Total	3.829583		23			

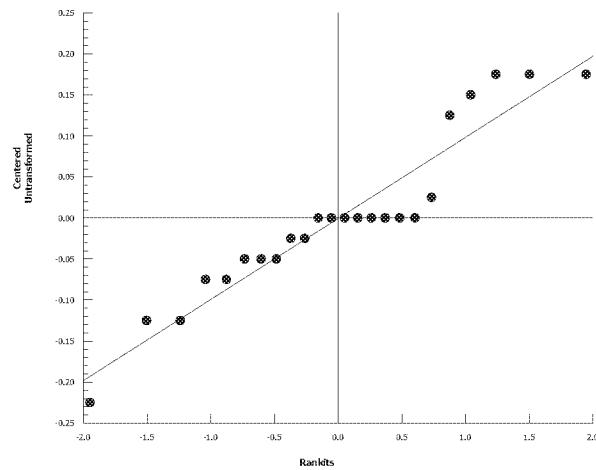
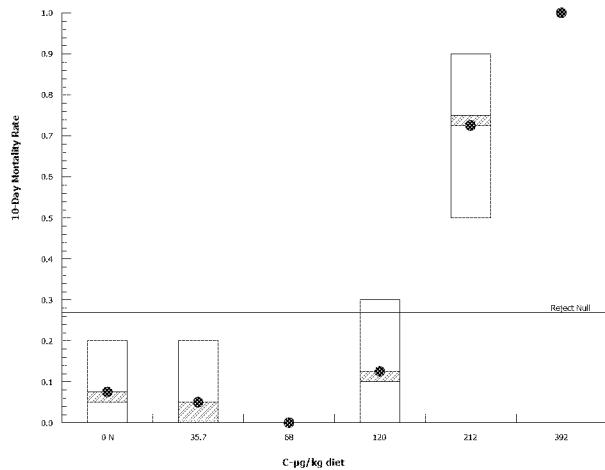
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	4.16	4.25	0.0110	Equal Variances
Variances	Levene Equality of Variance	8.87	4.25	0.0002	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.908	0.884	0.0325	Normal Distribution

## 10-Day Mortality Rate Summary

C- $\mu$ g/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2	0.0479	128.0%	0.0%
35.7		4	0.05	0	0.209	0	0	0.2	0.05	200.0%	-2.7%
68		4	0	0	0	0	0	0			-8.11%
120		4	0.125	0	0.325	0.1	0	0.3	0.0629	101.0%	5.41%
212		4	0.725	0.397	1	0.75	0.5	0.9	0.103	28.4%	70.3%
392		4	1	1	1	1	1	1	0	0.0%	100.0%

## Graphics



# CETIS Analytical Report

Report Date: 03 Apr-17 21:18 (p 2 of 6)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH								
Analysis ID:	18-6386-4312	Endpoint:	10-Day Mortality Rate			CETIS Version:		CETISv1.8.7					
Analyzed:	03 Apr-17 21:17	Analysis:	Parametric-Control vs Ord.Treatments			Official Results:		Yes					
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral			Analyst:							
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent:	Deionized Water						
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera			Brine:							
Duration:	309d 14h	Source:	Local Apiarist			Age:							
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU				
Untransformed	NA	C < T	NA	NA	16.2%	120	212	159.5					

## Williams Multiple Comparison Test

Control	vs	C- $\mu$ g/kg diet	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	35.7	-0.311	1.73	0.139	6	>0.05	CDF	Non-Significant Effect	
	68	-0.622	1.82	0.146	6	>0.05	CDF		
	120	0.622	1.85	0.148	6	>0.05	CDF		
	212*	8.09	1.86	0.149	6	<0.05	CDF		
	392*	11.5	1.87	0.15	6	<0.05	CDF		

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	3.597083	0.7194167	5	55.7	<0.0001	Significant Effect
Error	0.2325	0.01291667	18			
Total	3.829583		23			

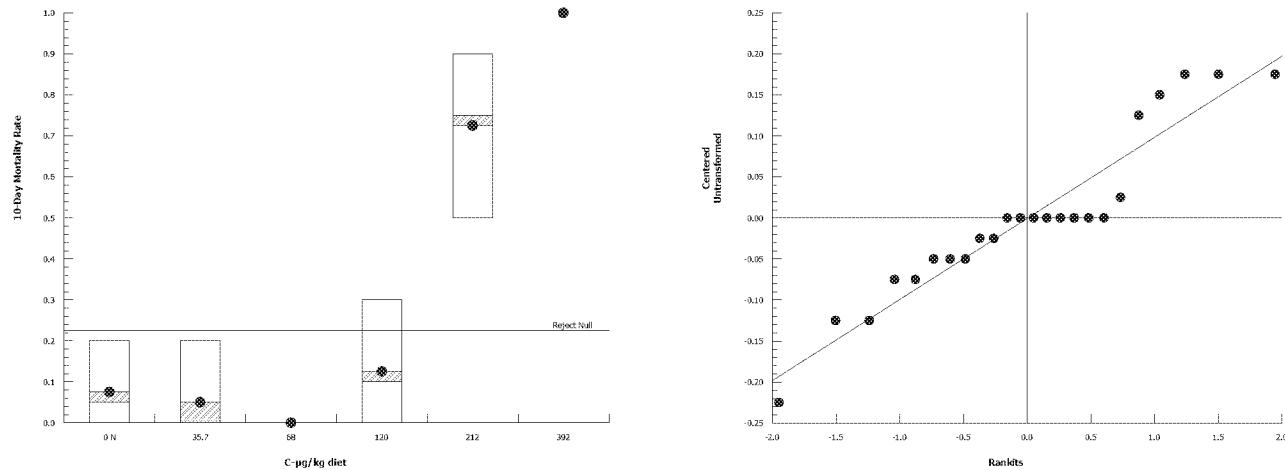
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Mod Levene Equality of Variance	4.16	4.25	0.0110	Equal Variances
Variances	Levene Equality of Variance	8.87	4.25	0.0002	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.908	0.884	0.0325	Normal Distribution

## 10-Day Mortality Rate Summary

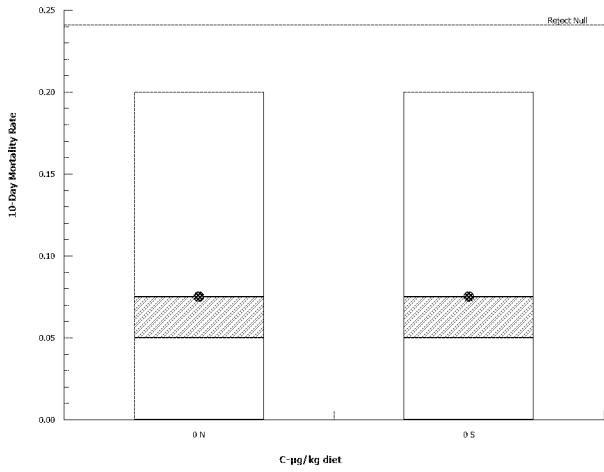
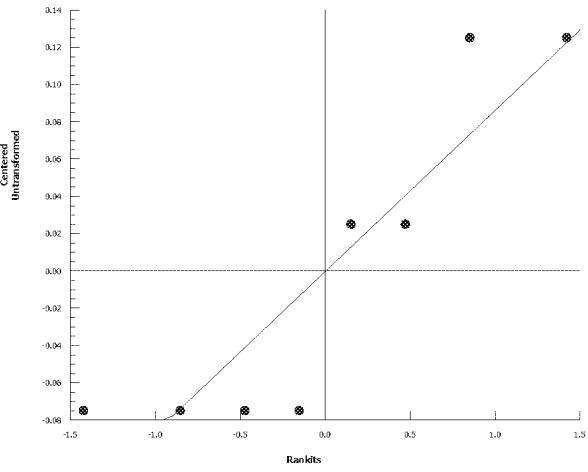
C- $\mu$ g/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2	0.0479	128.0%	0.0%
35.7		4	0.05	0	0.209	0	0	0.2	0.05	200.0%	-2.7%
68		4	0	0	0	0	0	0			-8.11%
120		4	0.125	0	0.325	0.1	0	0.3	0.0629	101.0%	5.41%
212		4	0.725	0.397	1	0.75	0.5	0.9	0.103	28.4%	70.3%
392		4	1	1	1	1	1	1	0	0.0%	100.0%

## Graphics



# CETIS Analytical Report

Report Date: 03 Apr-17 21:18 (p 3 of 6)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH			
Analysis ID: 20-9913-1803		Endpoint: 10-Day Mortality Rate			CETIS Version: CETISv1.8.7			
Analyzed: 03 Apr-17 21:18		Analysis: Parametric-Two Sample			Official Results: Yes			
Batch ID: 05-9233-5042		Test Type: 2014 Honeybee Adult Chron Oral			Analyst:			
Start Date: 18 May-16		Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water			
Ending Date: 23 Mar-17 14:02		Species: Apis mellifera			Brine:			
Duration: 309d 14h		Source: Local Apiarist			Age:			
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result		
Untransformed	NA	C <> T	NA	NA	17.9%	Passes 10-day mortality rate		
Equal Variance t Two-Sample Test								
Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type
Negative Control	Solvent Blank		0	2.45	0.166	6	1.0000	CDF
Non-Significant Effect								
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat		P-Value
Between	0		0		1	0		1.0000
Error	0.055		0.009166666		6			Non-Significant Effect
Total	0.055				7			
Distributional Tests								
Attribute	Test		Test Stat	Critical	P-Value	Decision( $\alpha$ :5%)		
Variances	Variance Ratio F		1	47.5	1.0000	Equal Variances		
Distribution	Shapiro-Wilk W Normality		0.782	0.645	0.0185	Normal Distribution		
10-Day Mortality Rate Summary								
C- $\mu$ g/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	Solvent Blank	4	0.075	0	0.227	0.05	0	0.2
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2
0		8	0.075	0	0.227	0.05	0	0.2
	Std Err		CV%		%Effect			
0	0.0479		128.0%		0.0%			
0	0.0479		128.0%		0.0%			
0	0.0479		128.0%		0.0%			
Graphics								
								

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH							
Analysis ID:		15-6170-8921	Endpoint:			CETIS Version:			CETISv1.8.7			
Analyzed:		03 Apr-17 21:17	Analysis:			Official Results:			Yes			
Batch ID:	05-9233-5042	Test Type:					Analyst:					
Start Date:	18 May-16	Protocol:					Diluent:					
Ending Date:	23 Mar-17 14:02	Species:					Brine:					
Duration:	309d 14h	Source:					Age:					
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU			
Untransformed	NA	C > T	NA	NA	20.0%	35.7	68	49.27				

## Williams Multiple Comparison Test

Control	vs	C- $\mu$ g/kg diet	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		35.7	1.28	1.73	7.1	6	>0.05	CDF	Non-Significant Effect
		68*	2.67	1.82	7.44	6	<0.05	CDF	Significant Effect
		120*	4.23	1.85	7.55	6	<0.05	CDF	Significant Effect
		212*	3.96	1.86	7.61	6	<0.05	CDF	Significant Effect
		392*	5.79	1.87	7.64	6	<0.05	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	1462.188	292.4377	5	8.72	0.0002	Significant Effect
Error	603.3099	33.51722	18			
Total	2065.499		23			

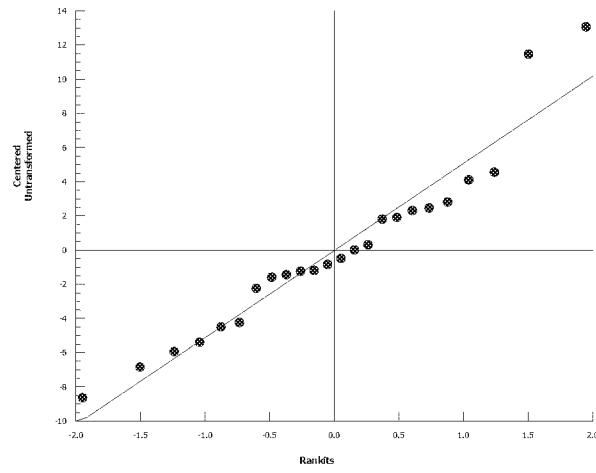
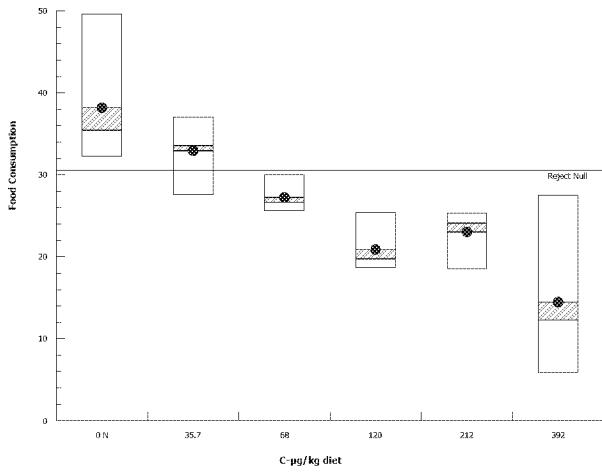
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	9.66	15.1	0.0853	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.937	0.884	0.1384	Normal Distribution

## Food Consumption Summary

C- $\mu$ g/kg diet	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0		Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	0.0%
35.7			4	32.9	26.4	39.4	33.6	27.5	37	2.03	12.3%	13.8%
68			4	27.2	24	30.4	26.6	25.6	30	0.993	7.3%	28.7%
120			4	20.8	15.9	25.8	19.7	18.6	25.4	1.54	14.8%	45.3%
212			4	23	18	28	24.1	18.5	25.3	1.56	13.6%	39.7%
392			4	14.4	-1.41	30.3	12.3	5.8	27.5	4.98	69.0%	62.1%

## Graphics



Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH						
Analysis ID:		17-6100-7222	Endpoint: Food Consumption			CETIS Version:		CETISv1.8.7			
Analyzed:		03 Apr-17 21:17	Analysis: Parametric-Control vs Treatments			Official Results:		Yes			
Batch ID:	05-9233-5042	Test Type: 2014 Honeybee Adult Chron Oral			Analyst:						
Start Date:	18 May-16	Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water						
Ending Date:	23 Mar-17 14:02	Species: Apis mellifera			Brine:						
Duration:	309d 14h	Source: Local Apiarist			Age:						
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU		
Untransformed	NA	C > T	NA	NA	25.8%	35.7	68	49.27			

**Dunnett Multiple Comparison Test**

Control	vs	C- $\mu$ g/kg diet	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		35.7	1.28	2.41	9.85	6	0.3047	CDF	Non-Significant Effect
		68*	2.67	2.41	9.85	6	0.0297	CDF	Significant Effect
		120*	4.23	2.41	9.85	6	0.0011	CDF	Significant Effect
		212*	3.7	2.41	9.85	6	0.0035	CDF	Significant Effect
		392*	5.79	2.41	9.85	6	<0.0001	CDF	Significant Effect

**ANOVA Table**

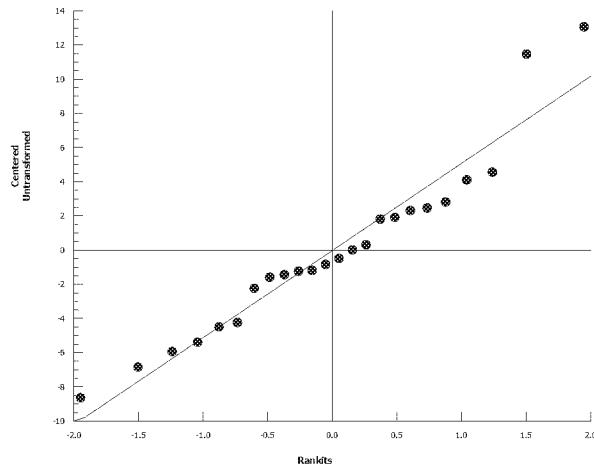
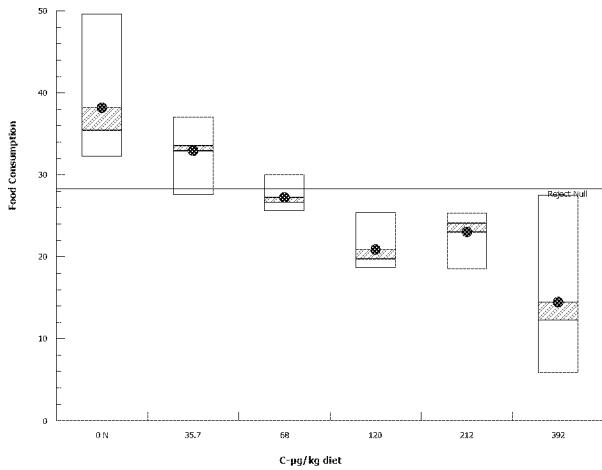
Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	1462.188	292.4377	5	8.72	0.0002	Significant Effect
Error	603.3099	33.51722	18			
Total	2065.499		23			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	9.66	15.1	0.0853	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.937	0.884	0.1384	Normal Distribution

**Food Consumption Summary**

C- $\mu$ g/kg diet	Control	Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0		Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	0.0%
35.7			4	32.9	26.4	39.4	33.6	27.5	37	2.03	12.3%	13.8%
68			4	27.2	24	30.4	26.6	25.6	30	0.993	7.3%	28.7%
120			4	20.8	15.9	25.8	19.7	18.6	25.4	1.54	14.8%	45.3%
212			4	23	18	28	24.1	18.5	25.3	1.56	13.6%	39.7%
392			4	14.4	-1.41	30.3	12.3	5.8	27.5	4.98	69.0%	62.1%

**Graphics**

# CETIS Analytical Report

Report Date: 03 Apr-17 21:18 (p 6 of 6)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH		
Analysis ID:	16-3077-4415	Endpoint:	Food Consumption		CETIS Version: CETISv1.8.7	
Analyzed:	03 Apr-17 21:18	Analysis:	Parametric-Two Sample		Official Results: Yes	
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral		Analyst:	
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d		Diluent: Deionized Water	
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera		Brine:	
Duration:	309d 14h	Source:	Local Apiarist		Age:	
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	26.5%	Passes food consumption

## Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	Solvent Blank		0.00604	2.45	10.1	6	0.9954	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.001250057	0.001250057	1	3.65E-05	0.9954	Non-Significant Effect
Error	205.3575	34.22624	6			
Total	205.3587		7			

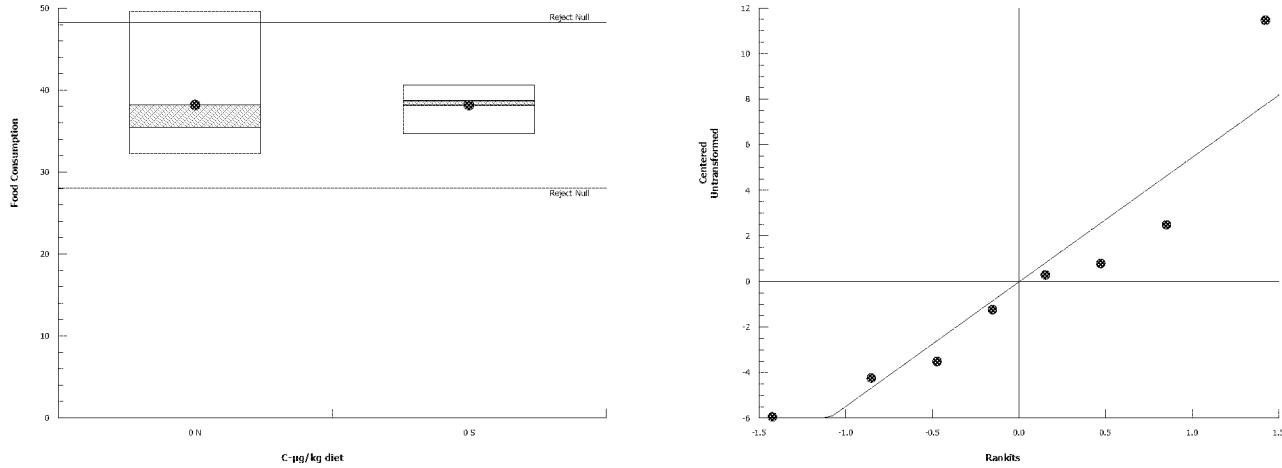
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Variance Ratio F	9.68	47.5	0.0945	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.887	0.645	0.2181	Normal Distribution

## Food Consumption Summary

C- $\mu$ g/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	4	38.1	34.1	42.2	38.7	34.6	40.6	1.27	6.64%	0.0%
0	Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	-0.07%

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:26 (p 1 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH				
Analysis ID:		Endpoint: 10-Day Mortality Rate			CETIS Version: CETISv1.8.7				
Analyzed:		Analysis: Parametric-Control vs Treatments			Official Results: Yes				
Batch ID:	07-9670-7022	Test Type: 2014 Honeybee Adult Chron Oral			Analyst:				
Start Date:	18 May-16	Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water				
Ending Date:	10 Jul-16	Species: Apis mellifera			Brine:				
Duration:	53d 0h	Source: Local Apiarist			Age:				

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C < T	NA	NA	20.9%	2.51	4.87	3.496	

## Dunnett Multiple Comparison Test

Control	vs	C-nг ai/bee	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	1.17		-0.311	2.41	0.193	6	0.9087	CDF	Non-Significant Effect
	1.85		-0.933	2.41	0.193	6	0.9794	CDF	Non-Significant Effect
	2.51		0.622	2.41	0.193	6	0.5934	CDF	Non-Significant Effect
	4.87*		8.09	2.41	0.193	6	<0.0001	CDF	Significant Effect
	7.26*		11.5	2.41	0.193	6	<0.0001	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	3.597083	0.7194167	5	55.7	<0.0001	Significant Effect
Error	0.2325	0.01291667	18			
Total	3.829583		23			

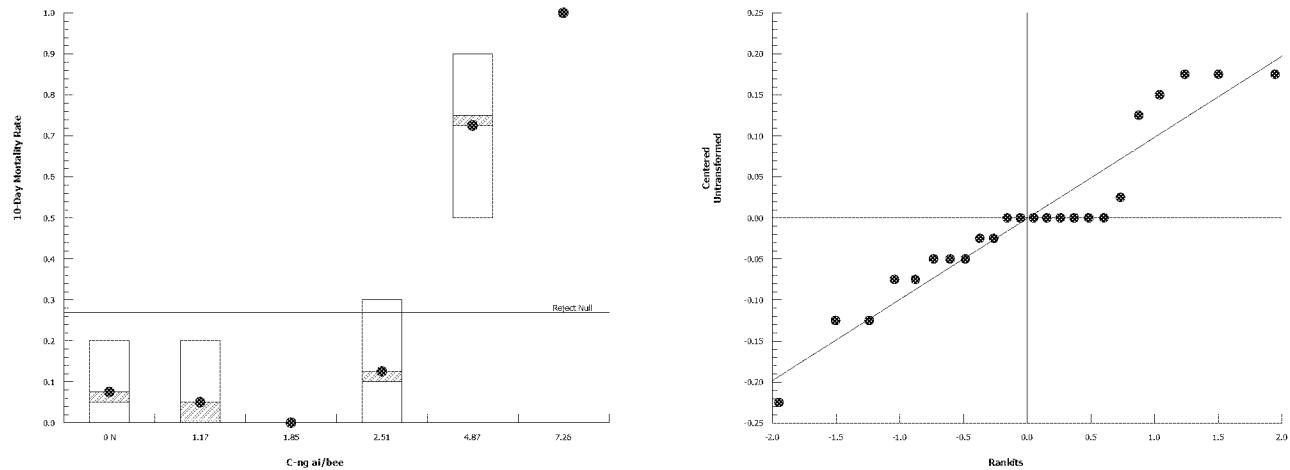
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Mod Levene Equality of Variance	4.16	4.25	0.0110	Equal Variances
Variances	Levene Equality of Variance	8.87	4.25	0.0002	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.908	0.884	0.0325	Normal Distribution

## 10-Day Mortality Rate Summary

C-nг ai/bee	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2	0.0479	128.0%	0.0%
1.17		4	0.05	0	0.209	0	0	0.2	0.05	200.0%	-2.7%
1.85		4	0	0	0	0	0	0			-8.11%
2.51		4	0.125	0	0.325	0.1	0	0.3	0.0629	101.0%	5.41%
4.87		4	0.725	0.397	1	0.75	0.5	0.9	0.103	28.4%	70.3%
7.26		4	1	1	1	1	1	1	0	0.0%	100.0%

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:26 (p 2 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH				
Analysis ID:		07-7157-7817	Endpoint:			CETIS Version:			CETISv1.8.7
Analyzed:		04 Apr-17 10:24	Analysis:			Official Results:			Yes
Batch ID:	07-9670-7022	Test Type:			2014 Honeybee Adult Chron Oral	Analyst:			
Start Date:	18 May-16	Protocol:			Honeybee Adult Chronic Oral Toxicity, 10-d	Diluent:			Deionized Water
Ending Date:	10 Jul-16	Species:			Apis mellifera	Brine:			
Duration:	53d 0h	Source:			Local Apiarist	Age:			
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C < T	NA	NA	16.2%	2.51	4.87	3.496	

## Williams Multiple Comparison Test

Control	vs	C-nг ai/bee	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha:5\%$ )
Negative Control	1.17		-0.311	1.73	0.139	6	>0.05	CDF	Non-Significant Effect
	1.85		-0.622	1.82	0.146	6	>0.05	CDF	Non-Significant Effect
	2.51		0.622	1.85	0.148	6	>0.05	CDF	Non-Significant Effect
	4.87*		8.09	1.86	0.149	6	<0.05	CDF	Significant Effect
	7.26*		11.5	1.87	0.15	6	<0.05	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Between	3.597083	0.7194167	5	55.7	<0.0001	Significant Effect
Error	0.2325	0.01291667	18			
Total	3.829583		23			

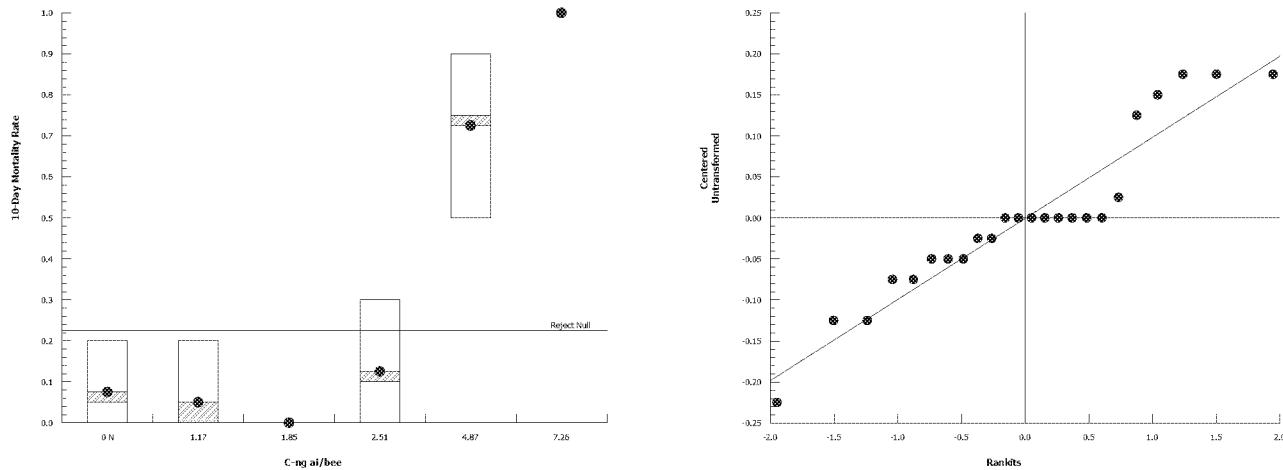
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha:1\%$ )
Variances	Mod Levene Equality of Variance	4.16	4.25	0.0110	Equal Variances
Variances	Levene Equality of Variance	8.87	4.25	0.0002	Unequal Variances
Distribution	Shapiro-Wilk W Normality	0.908	0.884	0.0325	Normal Distribution

## 10-Day Mortality Rate Summary

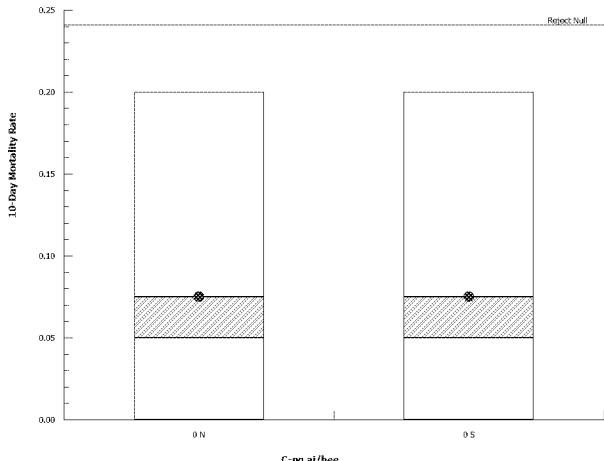
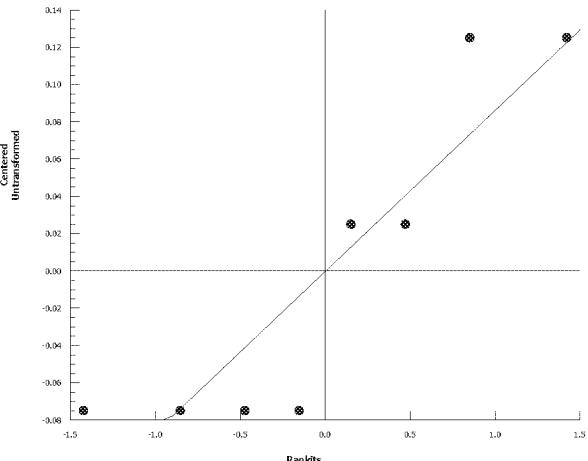
C-nг ai/bee	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2	0.0479	128.0%	0.0%
1.17		4	0.05	0	0.209	0	0	0.2	0.05	200.0%	-2.7%
1.85		4	0	0	0	0	0	0			-8.11%
2.51		4	0.125	0	0.325	0.1	0	0.3	0.0629	101.0%	5.41%
4.87		4	0.725	0.397	1	0.75	0.5	0.9	0.103	28.4%	70.3%
7.26		4	1	1	1	1	1	1	0	0.0%	100.0%

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:26 (p 3 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH			
Analysis ID: 10-1361-4575		Endpoint: 10-Day Mortality Rate			CETIS Version: CETISv1.8.7			
Analyzed: 04 Apr-17 10:25		Analysis: Parametric-Two Sample			Official Results: Yes			
Batch ID: 07-9670-7022		Test Type: 2014 Honeybee Adult Chron Oral			Analyst:			
Start Date: 18 May-16		Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water			
Ending Date: 10 Jul-16		Species: Apis mellifera			Brine:			
Duration: 53d 0h		Source: Local Apiarist			Age:			
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result		
Untransformed	NA	C <> T	NA	NA	17.9%	Passes 10-day mortality rate		
Equal Variance t Two-Sample Test								
Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type
Negative Control	Solvent Blank		0	2.45	0.166	6	1.0000	CDF
Non-Significant Effect								
ANOVA Table								
Source	Sum Squares		Mean Square		DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0		0		1	0	1.0000	Non-Significant Effect
Error	0.055		0.009166666		6			
Total	0.055				7			
Distributional Tests								
Attribute	Test		Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)		
Variances	Variance Ratio F		1	47.5	1.0000	Equal Variances		
Distribution	Shapiro-Wilk W Normality		0.782	0.645	0.0185	Normal Distribution		
10-Day Mortality Rate Summary								
C-ngr ai/bec	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max
0	Solvent Blank	4	0.075	0	0.227	0.05	0	0.2
0	Negative Control	4	0.075	0	0.227	0.05	0	0.2
0.0479 128.0% 0.0%								
Graphics								
								

# CETIS Analytical Report

Report Date: 04 Apr-17 10:26 (p 4 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH						
Analysis ID:		06-1598-8247	Endpoint: Food Consumption			CETIS Version:		CETISv1.8.7			
Analyzed:		04 Apr-17 10:24	Analysis: Parametric-Control vs Treatments			Official Results:		Yes			
Batch ID:	07-9670-7022	Test Type: 2014 Honeybee Adult Chron Oral			Analyst:						
Start Date:	18 May-16	Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water						
Ending Date:	10 Jul-16	Species: Apis mellifera			Brine:						
Duration:	53d 0h	Source: Local Apiarist			Age:						

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	25.8%	1.17	1.85	1.471	

## Dunnett Multiple Comparison Test

Control	vs	C-nг ai/bees	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control		1.17	1.28	2.41	9.85	6	0.3047	CDF	Non-Significant Effect
		1.85*	2.67	2.41	9.85	6	0.0297	CDF	Significant Effect
		2.51*	4.23	2.41	9.85	6	0.0011	CDF	Significant Effect
		4.87*	3.7	2.41	9.85	6	0.0035	CDF	Significant Effect
		7.26*	5.79	2.41	9.85	6	<0.0001	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	1462.188	292.4377	5	8.72	0.0002	Significant Effect
Error	603.3099	33.51722	18			
Total	2065.499		23			

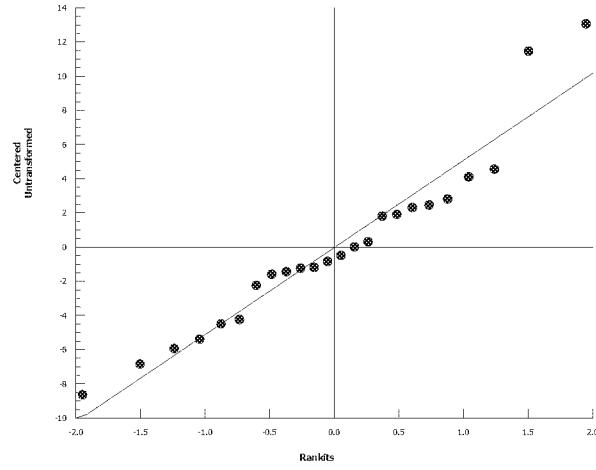
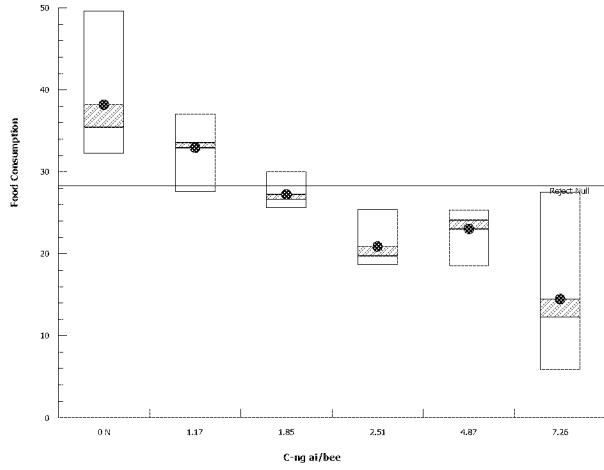
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	9.66	15.1	0.0853	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.937	0.884	0.1384	Normal Distribution

## Food Consumption Summary

C-nг ai/bees	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	0.0%
1.17		4	32.9	26.4	39.4	33.6	27.5	37	2.03	12.3%	13.8%
1.85		4	27.2	24	30.4	26.6	25.6	30	0.993	7.3%	28.7%
2.51		4	20.8	15.9	25.8	19.7	18.6	25.4	1.54	14.8%	45.3%
4.87		4	23	18	28	24.1	18.5	25.3	1.56	13.6%	39.7%
7.26		4	14.4	-1.41	30.3	12.3	5.8	27.5	4.98	69.0%	62.1%

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:26 (p 5 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study					Eurofins Agroscience Service GmbH						
Analysis ID:		10-2204-5560	Endpoint: Food Consumption			CETIS Version:		CETISv1.8.7			
Analyzed:		04 Apr-17 10:24	Analysis: Parametric-Control vs Ord.Treatments			Official Results:		Yes			
Batch ID:	07-9670-7022	Test Type: 2014 Honeybee Adult Chron Oral			Analyst:						
Start Date:	18 May-16	Protocol: Honeybee Adult Chronic Oral Toxicity, 10-d			Diluent: Deionized Water						
Ending Date:	10 Jul-16	Species: Apis mellifera			Brine:						
Duration:	53d 0h	Source: Local Apiarist			Age:						

Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	NOEL	LOEL	TOEL	TU
Untransformed	NA	C > T	NA	NA	20.0%	1.17	1.85	1.471	

## Williams Multiple Comparison Test

Control	vs	C-nг ai/bee	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	1.17		1.28	1.73	7.1	6	>0.05	CDF	Non-Significant Effect
	1.85*		2.67	1.82	7.44	6	<0.05	CDF	Significant Effect
	2.51*		4.23	1.85	7.55	6	<0.05	CDF	Significant Effect
	4.87*		3.96	1.86	7.61	6	<0.05	CDF	Significant Effect
	7.26*		5.79	1.87	7.64	6	<0.05	CDF	Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	1462.188	292.4377	5	8.72	0.0002	Significant Effect
Error	603.3099	33.51722	18			
Total	2065.499		23			

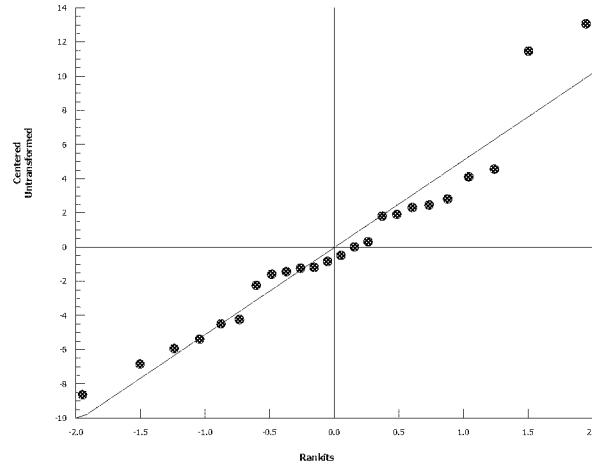
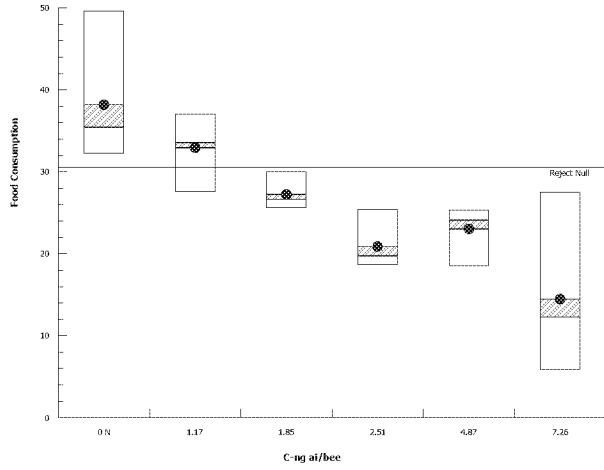
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Bartlett Equality of Variance	9.66	15.1	0.0853	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.937	0.884	0.1384	Normal Distribution

## Food Consumption Summary

C-nг ai/bee	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	0.0%
1.17		4	32.9	26.4	39.4	33.6	27.5	37	2.03	12.3%	13.8%
1.85		4	27.2	24	30.4	26.6	25.6	30	0.993	7.3%	28.7%
2.51		4	20.8	15.9	25.8	19.7	18.6	25.4	1.54	14.8%	45.3%
4.87		4	23	18	28	24.1	18.5	25.3	1.56	13.6%	39.7%
7.26		4	14.4	-1.41	30.3	12.3	5.8	27.5	4.98	69.0%	62.1%

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:27 (p 6 of 6)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH		
Analysis ID:	12-1918-6640	Endpoint:	Food Consumption		CETIS Version: CETISv1.8.7	
Analyzed:	04 Apr-17 10:25	Analysis:	Parametric-Two Sample		Official Results: Yes	
Batch ID:	07-9670-7022	Test Type:	2014 Honeybee Adult Chron Oral		Analyst:	
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d		Diluent: Deionized Water	
Ending Date:	10 Jul-16	Species:	Apis mellifera		Brine:	
Duration:	53d 0h	Source:	Local Apiarist		Age:	
Data Transform	Zeta	Alt Hyp	Trials	Seed	PMSD	Test Result
Untransformed	NA	C <> T	NA	NA	26.5%	Passes food consumption

## Equal Variance t Two-Sample Test

Control	vs	Control	Test Stat	Critical	MSD	DF	P-Value	P-Type	Decision( $\alpha$ :5%)
Negative Control	Solvent Blank		0.00604	2.45	10.1	6	0.9954	CDF	Non-Significant Effect

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha$ :5%)
Between	0.001250057	0.001250057	1	3.65E-05	0.9954	Non-Significant Effect
Error	205.3575	34.22624	6			
Total	205.3587		7			

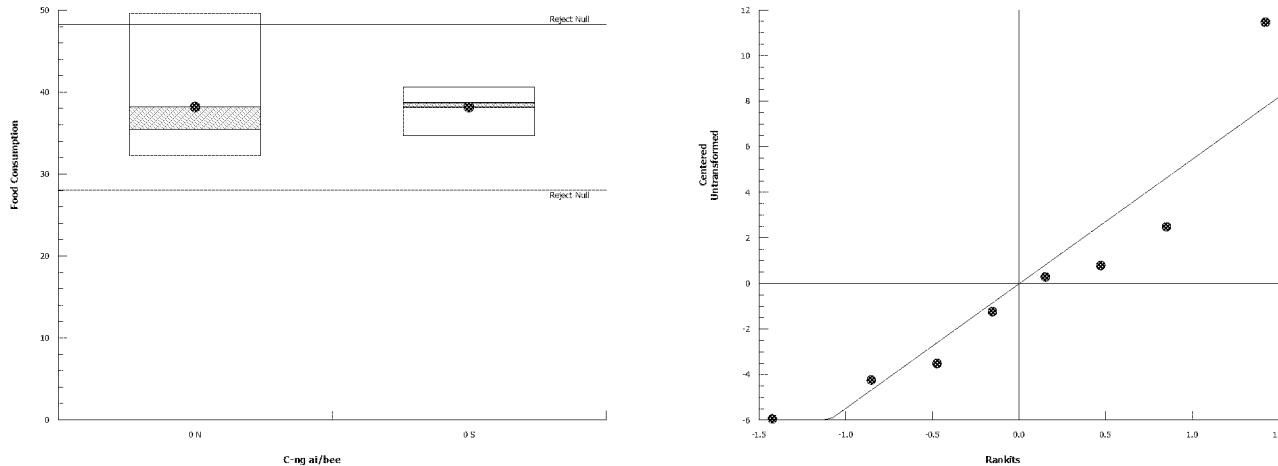
## Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision( $\alpha$ :1%)
Variances	Variance Ratio F	9.68	47.5	0.0945	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.887	0.645	0.2181	Normal Distribution

## Food Consumption Summary

C-ngr ai/bec	Control Type	Count	Mean	95% LCL	95% UCL	Median	Min	Max	Std Err	CV%	%Effect
0	Solvent Blank	4	38.1	34.1	42.2	38.7	34.6	40.6	1.27	6.64%	0.0%
0	Negative Control	4	38.2	25.6	50.7	35.4	32.2	49.6	3.94	20.6%	-0.07%

## Graphics



# CETIS Analytical Report

Report Date: 03 Apr-17 21:19 (p 1 of 2)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Analysis ID:	18-0354-2660	Endpoint:	10-Day Mortality Rate		CETIS Version: CETISv1.8.7
Analyzed:	03 Apr-17 21:17	Analysis:	Linear Regression (MLE)		Official Results: Yes
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral		Analyst:
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d		Diluent: Deionized Water
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera		Brine:
Duration:	309d 14h	Source:	Local Apiarist		Age:

## Linear Regression Options

Model Function	Threshold Option	Threshold	Optimized Pooled	Het Corr	Weighted
Log-Normal [NED=A+B*log(X)]	Zero Threshold	0	No	No	Yes

## Regression Summary

Iters	LL	AICc	BIC	Mu	Sigma	Adj R2	F Stat	Critical	P-Value	Decision( $\alpha:5\%$ )
9	-57.9	120	122	2.22	0.219		99.5	3.29	0.0000	Significant Lack of Fit

## Point Estimates

Level	$\mu\text{g/kg diet}$	95% LCL	95% UCL
EC5	72.3	N/A	N/A
EC10	86.8	N/A	N/A
EC15	98.2	N/A	N/A
EC20	108	N/A	N/A
EC25	118	N/A	N/A
EC40	146	N/A	N/A
EC50	165	N/A	N/A

## Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision( $\alpha:5\%$ )
Slope	4.57	2.49	-0.662	9.81	1.84	0.0830	Non-Significant Parameter
Intercept	-10.1	5.53	-21.8	1.47	-1.84	0.0830	Non-Significant Parameter

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision( $\alpha:5\%$ )
Model	0	0	1	0	1.0000	Non-Significant
Lack of Fit	339.3419	113.1139	3	99.5	<0.0001	Significant
Pure Error	17.05363	1.136909	15			
Residual	356.3955	19.79975	18			

## Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision( $\alpha:5\%$ )
Goodness-of-Fit	Pearson Chi-Sq GOF	356	28.9	<0.0001	Significant Heterogeneity
	Likelihood Ratio GOF	40.2	28.9	0.0019	Significant Heterogeneity
Variances	Mod Levene Equality of Variance	0.872	3.06	0.5034	Equal Variances
	Shapiro-Wilk W Normality	0.43	0.904	<0.0001	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	4.78	2.49	<0.0001	Non-normal Distribution

## 10-Day Mortality Rate Summary

C- $\mu\text{g/kg die}$	Control Type	Count	Calculated Variate(A/B)							
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A
35.7		4	0.05	0	0.2	0.05	0.1	200.0%	0.0%	2
68		4	0	0	0	0	0		-5.26%	0
120		4	0.125	0	0.3	0.0629	0.126	101.0%	7.89%	5
212		4	0.725	0.5	0.9	0.103	0.206	28.4%	71.1%	29
392		4	1	1	1	0	0	0.0%	100.0%	40

## Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study

Eurofins Agroscience Service GmbH

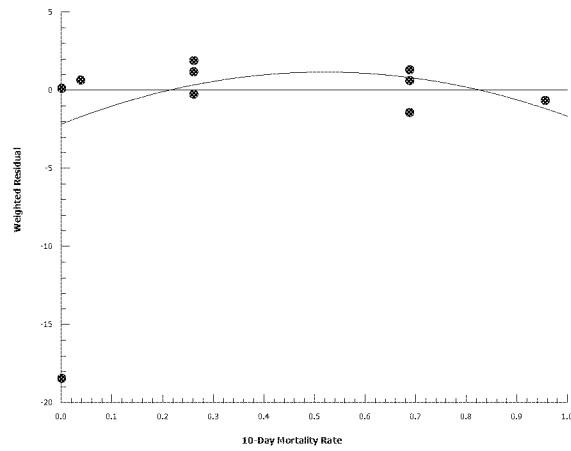
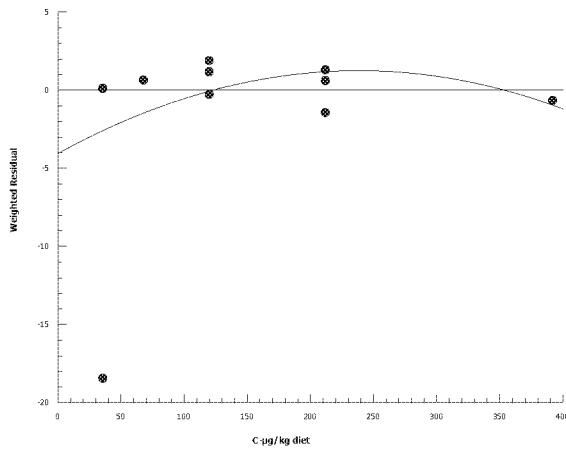
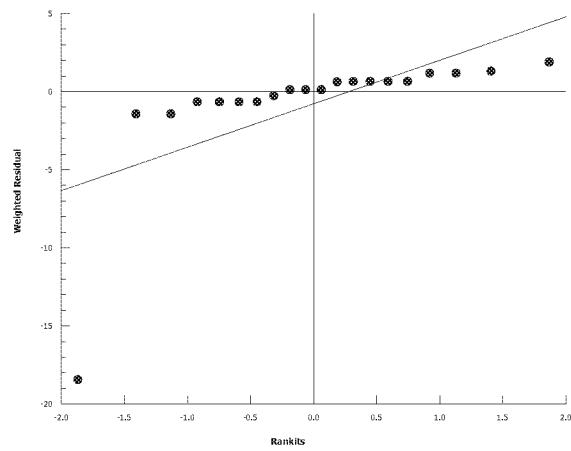
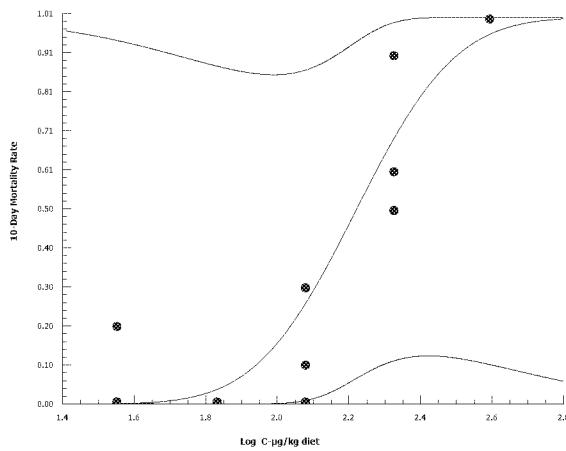
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 Analyzed: 03 Apr-17 21:17

Endpoint: 10-Day Mortality Rate  
 Analysis: Linear Regression (MLE)

CETIS Version: CETISv1.8.7  
 Official Results: Yes

## Graphics

## Log-Normal [NED=A+B\*log(X)]



# CETIS Analytical Report

Report Date: 04 Apr-17 10:27 (p 1 of 2)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study						Eurofins Agroscience Service GmbH							
Analysis ID:	04-4961-2271	Endpoint:	10-Day Mortality Rate				CETIS Version:	CETISv1.8.7					
Analyzed:	04 Apr-17 10:24	Analysis:	Linear Regression (MLE)				Official Results:	Yes					
Batch ID:	07-9670-7022	Test Type:	2014 Honeybee Adult Chron Oral				Analyst:						
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d				Diluent:	Deionized Water					
Ending Date:	10 Jul-16	Species:	Apis mellifera				Brine:						
Duration:	53d 0h	Source:	Local Apiarist				Age:						
<b>Linear Regression Options</b>													
<b>Model Function</b>			Threshold Option	Threshold	Optimized Pooled	Het Corr	Weighted						
Log-Normal [NED=A+B*log(X)]			Zero Threshold	0	No	No	Yes	Yes					
<b>Regression Summary</b>													
Iters	LL	AICc	BIC	Mu	Sigma	Adj R2	F Stat	Critical	P-Value	Decision( $\alpha:5\%$ )			
7	-55	115	116	0.564	0.179		40.8	3.29	0.0000	Significant Lack of Fit			
<b>Point Estimates</b>													
Level	ng ai/bee	95% LCL	95% UCL										
EC5	1.86	0.414	2.72										
EC10	2.16	0.645	3.06										
EC15	2.39	0.862	3.35										
EC20	2.59	1.08	3.62										
EC25	2.78	1.29	3.9										
EC40	3.3	1.96	4.96										
EC50	3.67	2.39	5.99										
<b>Regression Parameters</b>													
Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision( $\alpha:5\%$ )						
Slope	5.59	1.82	1.77	9.42	3.07	0.0066	Significant Parameter						
Intercept	-3.16	1.07	-5.4	-0.908	-2.95	0.0086	Significant Parameter						
<b>ANOVA Table</b>													
Source	Sum Squares	Mean Square	DF		F Stat	P-Value	Decision( $\alpha:5\%$ )						
Model	0	0	1		0	1.0000	Non-Significant						
Lack of Fit	139.2131	46.40437	3		40.8	<0.0001	Significant						
Pure Error	17.05363	1.136909	15										
Residual	156.2667	8.681484	18										
<b>Residual Analysis</b>													
Attribute	Method		Test Stat	Critical	P-Value	Decision( $\alpha:5\%$ )							
Goodness-of-Fit	Pearson Chi-Sq GOF		156	28.9	<0.0001	Significant Heterogeneity							
	Likelihood Ratio GOF		34.4	28.9	0.0112	Significant Heterogeneity							
Variances	Mod Levene Equality of Variance		0.847	3.06	0.5173	Equal Variances							
	Shapiro-Wilk W Normality		0.524	0.904	<0.0001	Non-normal Distribution							
Distribution	Anderson-Darling A2 Normality		3.6	2.49	<0.0001	Non-normal Distribution							
<b>10-Day Mortality Rate Summary</b>						<b>Calculated Variate(A/B)</b>							
C-ng ai/bee	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B		
1.17		4	0.05	0	0.2	0.05	0.1	200.0%	0.0%	2	40		
1.85		4	0	0	0	0	0		-5.26%	0	40		
2.51		4	0.125	0	0.3	0.0629	0.126	101.0%	7.89%	5	40		
4.87		4	0.725	0.5	0.9	0.103	0.206	28.4%	71.1%	29	40		
7.26		4	1	1	1	0	0	0.0%	100.0%	40	40		

## Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study

Eurofins Agroscience Service GmbH

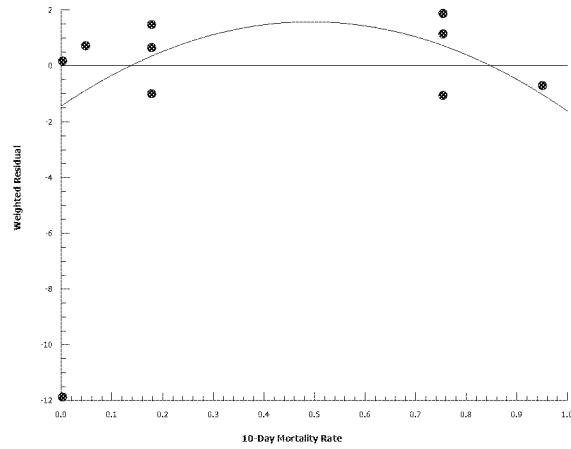
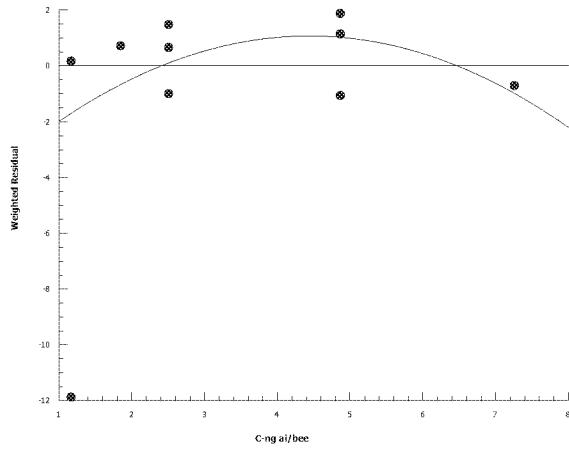
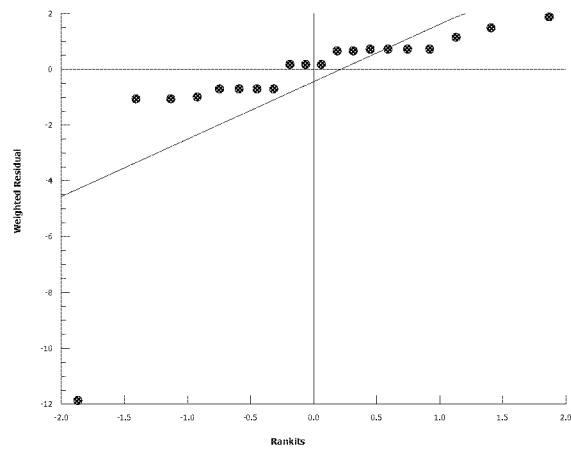
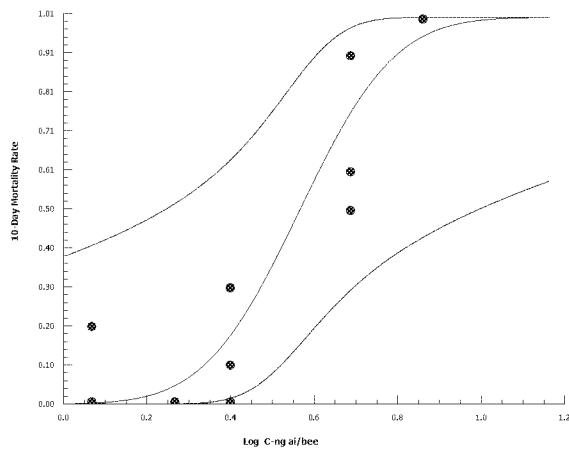
Analysis ID: 04-4961-2271  
 Analyzed: 04 Apr-17 10:24

Endpoint: 10-Day Mortality Rate  
 Analysis: Linear Regression (MLE)

CETIS Version: CETISv1.8.7  
 Official Results: Yes

## Graphics

Log-Normal [NED=A+B\*log(X)]



**CETIS Analytical Report**

Report Date: 03 Apr-17 21:19 (p 1 of 2)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Analysis ID:	16-1871-7337	Endpoint:	Food Consumption		CETIS Version: CETISv1.8.7
Analyzed:	03 Apr-17 21:17	Analysis:	Nonlinear Regression		Official Results: Yes
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral		Analyst:
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d		Diluent: Deionized Water
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera		Brine:
Duration:	309d 14h	Source:	Local Apiarist		Age:

**Non-Linear Regression Options**

Model Function	X Transform	Y Transform	Weighting Function	PTBS Function
3P Cumulative Log-Normal EV [Y=A*(1- Φ(log(X/D)/C))]	None	None	Normal [W=1]	Off [Y*=Y]

**Regression Summary**

Iters	Log LL	AICc	BIC	Adj R2	Optimize	F Stat	Critical	P-Value	Decision(α:5%)
5	-52.4	112	114	0.6308	Yes	0.925	3.16	0.4489	Non-Significant Lack of Fit

**Point Estimates**

Level	µg/kg diet	95% LCL	95% UCL
EC5	7.93	N/A	29.6
EC10	16.7	N/A	43
EC15	27.5	7.18	59.6
EC20	41.1	16.8	78.4
EC25	57.8	29.7	99.6
EC40	137	92.3	199
EC50	230	147	359

**Regression Parameters**

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision(α:5%)
A	38.4	2.86	32.8	44	13.4	<0.0001	Significant Parameter
C	2.05	0.57	0.93	3.16	3.59	0.0017	Significant Parameter
D	230	68.9	94.8	365	3.34	0.0031	Significant Parameter

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Model	1369.197	1369.197	1	41.3	<0.0001	Significant
Lack of Fit	92.99107	30.99702	3	0.925	0.4489	Non-Significant
Pure Error	603.3099	33.51722	18			
Residual	696.301	33.15719	21			

**Residual Analysis**

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Variances	Bartlett Equality of Variance	9.66	11.1	0.0853	Equal Variances
	Mod Levene Equality of Variance	1.74	2.77	0.1758	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.969	0.917	0.6313	Normal Distribution
	Anderson-Darling A2 Normality	0.283	2.49	0.6642	Normal Distribution

**Food Consumption Summary**

C-µg/kg die	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	38.2	32.2	49.6	3.94	7.88	20.6%	0.0%
35.7		4	32.9	27.5	37	2.03	4.06	12.3%	13.8%
68		4	27.2	25.6	30	0.993	1.99	7.3%	28.7%
120		4	20.8	18.6	25.4	1.54	3.09	14.8%	45.3%
212		4	23	18.5	25.3	1.56	3.12	13.6%	39.7%
392		4	14.4	5.8	27.5	4.98	9.97	69.0%	62.1%

## Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study

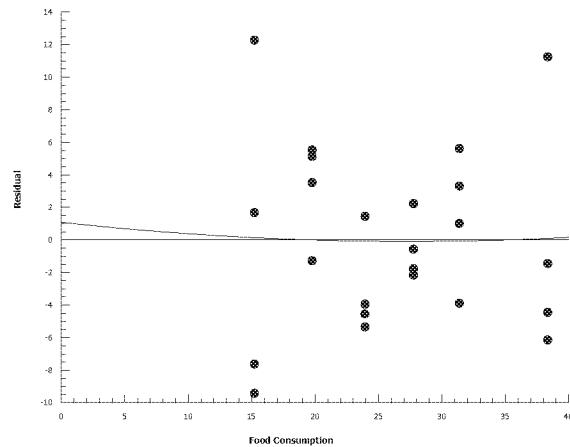
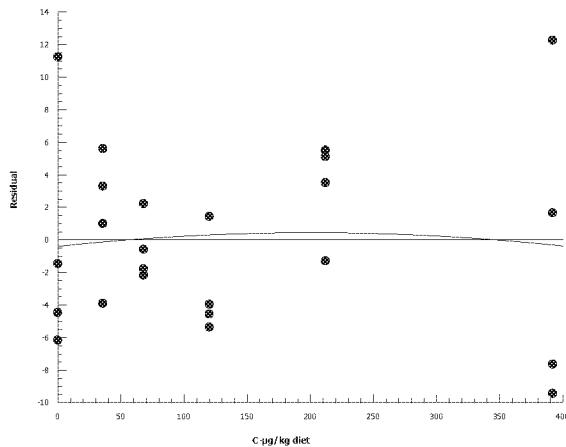
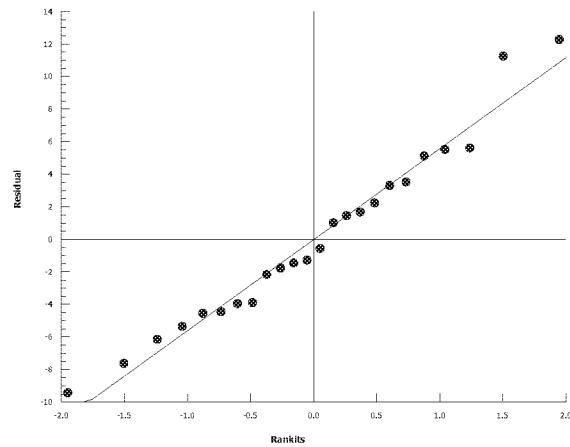
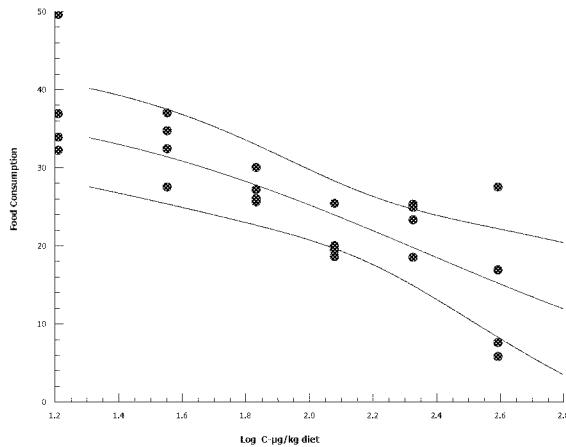
Eurofins Agroscience Service GmbH

Analysis ID: 16-1871-7337  
 Analyzed: 03 Apr-17 21:17

Endpoint: Food Consumption  
 Analysis: Nonlinear Regression

CETIS Version: CETISv1.8.7  
 Official Results: Yes

## Graphics

3P Cumulative Log-Normal EV [ $Y=A^*(1-\Phi(\log(X/D)/C))$ ]

# CETIS Analytical Report

Report Date: 04 Apr-17 10:27 (p 1 of 2)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Analysis ID:	07-1590-3851	Endpoint:	Food Consumption		CETIS Version: CETISv1.8.7
Analyzed:	04 Apr-17 10:24	Analysis:	Nonlinear Regression		Official Results: Yes
Batch ID:	07-9670-7022	Test Type:	2014 Honeybee Adult Chron Oral		Analyst:
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d		Diluent: Deionized Water
Ending Date:	10 Jul-16	Species:	Apis mellifera		Brine:
Duration:	53d 0h	Source:	Local Apiarist		Age:

## Non-Linear Regression Options

Model Function	X Transform	Y Transform	Weighting Function	PTBS Function
3P Cumulative Log-Normal EV [Y=A*(1- Φ(log(X/D)/C))]	None	None	Normal [W=1]	Off [Y*=Y]

## Regression Summary

Iters	Log LL	AICc	BIC	Adj R2	Optimize	F Stat	Critical	P-Value	Decision(α:5%)
6	-53.4	114	116	0.5989	Yes	1.52	3.16	0.2427	Non-Significant Lack of Fit

## Point Estimates

Level	ng ai/bee	95% LCL	95% UCL
EC5	0.291	N/A	0.922
EC10	0.543	N/A	1.25
EC15	0.827	0.239	1.63
EC20	1.16	0.52	2.04
EC25	1.54	0.857	2.47
EC40	3.17	2.26	4.39
EC50	4.9	3.31	7.28

## Regression Parameters

Parameter	Estimate	Std Error	95% LCL	95% UCL	t Stat	P-Value	Decision(α:5%)
A	38.4	2.99	32.5	44.3	12.9	<0.0001	Significant Parameter
C	1.72	0.503	0.731	2.7	3.41	0.0026	Significant Parameter
D	4.9	1.3	2.36	7.45	3.78	0.0011	Significant Parameter

## ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Model	1309.085	1309.085	1	36.3	<0.0001	Significant
Lack of Fit	153.1037	51.03458	3	1.52	0.2427	Non-Significant
Pure Error	603.3099	33.51722	18			
Residual	756.4136	36.0197	21			

## Residual Analysis

Attribute	Method	Test Stat	Critical	P-Value	Decision(α:5%)
Variances	Bartlett Equality of Variance	9.66	11.1	0.0853	Equal Variances
	Mod Levene Equality of Variance	1.74	2.77	0.1758	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.976	0.917	0.8044	Normal Distribution
	Anderson-Darling A2 Normality	0.204	2.49	0.9180	Normal Distribution

## Food Consumption Summary

C-ng ai/bee	Control Type	Count	Calculated Variate						
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	4	38.2	32.2	49.6	3.94	7.88	20.6%	0.0%
1.17		4	32.9	27.5	37	2.03	4.06	12.3%	13.8%
1.85		4	27.2	25.6	30	0.993	1.99	7.3%	28.7%
2.51		4	20.8	18.6	25.4	1.54	3.09	14.8%	45.3%
4.87		4	23	18.5	25.3	1.56	3.12	13.6%	39.7%
7.26		4	14.4	5.8	27.5	4.98	9.97	69.0%	62.1%

## Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study

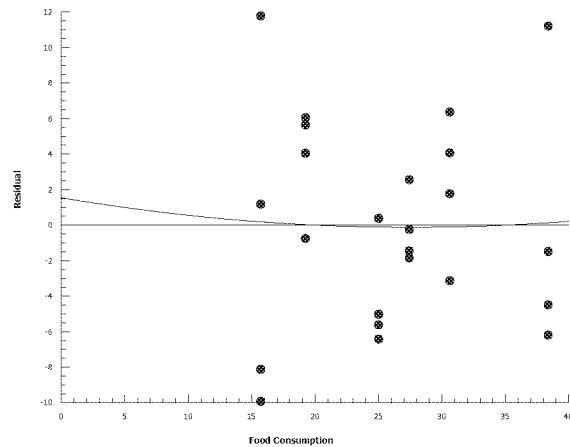
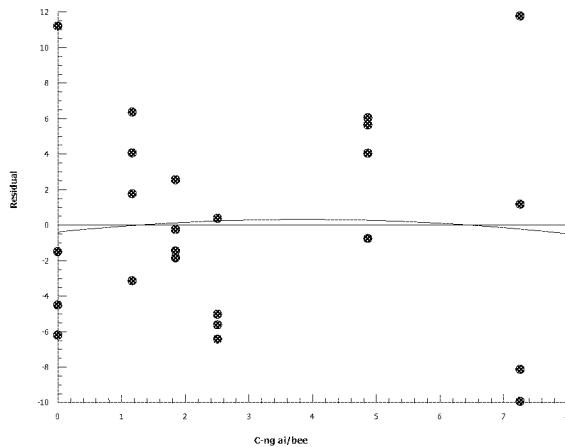
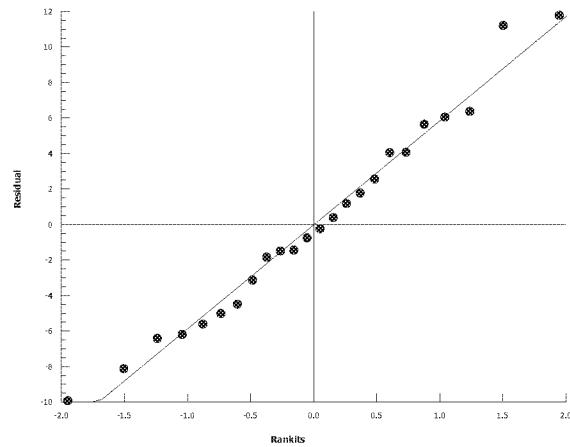
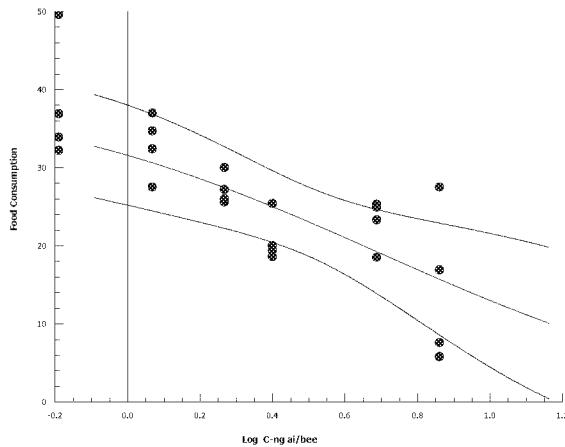
Eurofins Agroscience Service GmbH

Analysis ID: 07-1590-3851  
 Analyzed: 04 Apr-17 10:24

Endpoint: Food Consumption  
 Analysis: Nonlinear Regression

CETIS Version: CETISv1.8.7  
 Official Results: Yes

## Graphics

3P Cumulative Log-Normal EV [ $Y=A^*(1-\Phi(\log(X/D)/C))$ ]

# CETIS Summary Report

Report Date: 03 Apr-17 21:20 (p 1 of 2)  
 Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral	Analyst:	
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d	Diluent:	Deionized Water
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera	Brine:	
Duration:	309d 14h	Source:	Local Apiarist	Age:	
Sample ID:	05-9661-6371	Code:	50084901 conc	Client:	CDM Smith - E. Krupka
Sample Date:	18 May-16	Material:	Thiamethoxam	Project:	Insecticide
Receive Date:	23 Mar-17 14:02	Source:	Syngenta		
Sample Age:	NA	Station:			
Batch Note:	060109 50084901 - dietary concentrations				

## Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
20-9913-1803	10-Day Mortality Rate	0	>0		17.9%		Equal Variance t Two-Sample Test
14-9499-6728	10-Day Mortality Rate	120	212	159.5	20.9%		Dunnett Multiple Comparison Test
18-6386-4312	10-Day Mortality Rate	120	212	159.5	16.2%		Williams Multiple Comparison Test
16-3077-4415	Food Consumption	0	>0		26.5%		Equal Variance t Two-Sample Test
17-6100-7222	Food Consumption	35.7	68	49.27	25.8%		Dunnett Multiple Comparison Test
15-6170-8921	Food Consumption	35.7	68	49.27	20.0%		Williams Multiple Comparison Test

## Point Estimate Summary

Analysis ID	Endpoint	Level	µg/kg diet	95% LCL	95% UCL	TU	Method
18-0354-2660	10-Day Mortality Rate	EC5	72.3	N/A	N/A		Linear Regression (MLE)
		EC10	86.8	N/A	N/A		
		EC15	98.2	N/A	N/A		
		EC20	108	N/A	N/A		
		EC25	118	N/A	N/A		
		EC40	146	N/A	N/A		
		EC50	165	N/A	N/A		
07-4145-8418	10-Day Mortality Rate	EC50	180	163	199		Spearman-Kärber
16-1871-7337	Food Consumption	EC5	7.93	N/A	29.6		Nonlinear Regression
		EC10	16.7	N/A	43		
		EC15	27.5	7.18	59.6		
		EC20	41.1	16.8	78.4		
		EC25	57.8	29.7	99.6		
		EC40	137	92.3	199		
		EC50	230	147	359		

## 10-Day Mortality Rate Summary

C-µg/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	4	0.075	0	0.227	0	0.2	0.0479	0.0957	128.0%	0.0%
0	Negative Control	4	0.075	0	0.227	0	0.2	0.0479	0.0957	128.0%	0.0%
35.7		4	0.05	0	0.209	0	0.2	0.05	0.1	200.0%	-2.7%
68		4	0	0	0	0	0	0	0		-8.11%
120		4	0.125	0	0.325	0	0.3	0.0629	0.126	101.0%	5.41%
212		4	0.725	0.397	1	0.5	0.9	0.103	0.206	28.4%	70.3%
392		4	1	1	1	1	1	0	0	0.0%	100.0%

## Food Consumption Summary

C-µg/kg diet	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	4	38.1	34.1	42.2	34.6	40.6	1.27	2.53	6.64%	0.0%
0	Negative Control	4	38.2	25.6	50.7	32.2	49.6	3.94	7.88	20.6%	-0.07%
35.7		4	32.9	26.4	39.4	27.5	37	2.03	4.06	12.3%	13.7%
68		4	27.2	24	30.4	25.6	30	0.993	1.99	7.3%	28.7%
120		4	20.8	15.9	25.8	18.6	25.4	1.54	3.09	14.8%	45.3%
212		4	23	18	28	18.5	25.3	1.56	3.12	13.6%	39.7%
392		4	14.4	-1.41	30.3	5.8	27.5	4.98	9.97	69.0%	62.1%

**CETIS Summary Report**

Report Date: 03 Apr-17 21:20 (p 2 of 2)  
Test Code: 50084901 conc | 06-5424-0163

**Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study****Eurofins Agroscience Service GmbH****10-Day Mortality Rate Detail**

C- $\mu$ g/kg diet	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Solvent Blank	0.1	0.2	0	0
0	Negative Control	0	0.2	0	0.1
35.7		0	0.2	0	0
68		0	0	0	0
120		0.1	0	0.1	0.3
212		0.9	0.9	0.5	0.6
392		1	1	1	1

**Food Consumption Detail**

C- $\mu$ g/kg diet	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Solvent Blank	38.9	40.6	38.4	34.6
0	Negative Control	36.9	32.2	33.9	49.6
35.7		27.5	37	34.7	32.4
68		25.6	26	27.2	30
120		20	18.6	19.4	25.4
212		25.3	18.5	23.3	24.9
392		5.8	16.9	27.5	7.6

# CETIS Summary Report

Report Date: 04 Apr-17 10:28 (p 1 of 2)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Batch ID:	07-9670-7022	Test Type:	2014 Honeybee Adult Chron Oral	Analyst:	
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d	Diluent:	Deionized Water
Ending Date:	10 Jul-16	Species:	Apis mellifera	Brine:	
Duration:	53d 0h	Source:	Local Apiarist	Age:	
Sample ID:	21-3995-6608	Code:	50084901	Client:	CDM Smith - E. Krupka
Sample Date:	18 May-16	Material:	Thiamethoxam	Project:	Insecticide
Receive Date:		Source:	Syngenta		
Sample Age:	NA	Station:			

Batch Note: MRID 50084901 - concentrations expressed as dietary dose

Sample Note: MRID 50084901

## Comparison Summary

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
10-1361-4575	10-Day Mortality Rate	0	>0		17.9%		Equal Variance t Two-Sample Test
15-8691-3346	10-Day Mortality Rate	2.51	4.87	3.496	20.9%		Dunnett Multiple Comparison Test
07-7157-7817	10-Day Mortality Rate	2.51	4.87	3.496	16.2%		Williams Multiple Comparison Test
12-1918-6640	Food Consumption	0	>0		26.5%		Equal Variance t Two-Sample Test
06-1598-8247	Food Consumption	1.17	1.85	1.471	25.8%		Dunnett Multiple Comparison Test
10-2204-5560	Food Consumption	1.17	1.85	1.471	20.0%		Williams Multiple Comparison Test

## Point Estimate Summary

Analysis ID	Endpoint	Level	ng ai/bees	95% LCL	95% UCL	TU	Method
04-4961-2271	10-Day Mortality Rate	EC5	1.86	0.414	2.72		Linear Regression (MLE)
		EC10	2.16	0.645	3.06		
		EC15	2.39	0.862	3.35		
		EC20	2.59	1.08	3.62		
		EC25	2.78	1.29	3.9		
		EC40	3.3	1.96	4.96		
		EC50	3.67	2.39	5.99		
01-6034-7727	10-Day Mortality Rate	EC50	3.9	3.58	4.26		Spearman-Kärber
07-1590-3851	Food Consumption	EC5	0.291	N/A	0.922		Nonlinear Regression
		EC10	0.543	N/A	1.25		
		EC15	0.827	0.239	1.63		
		EC20	1.16	0.52	2.04		
		EC25	1.54	0.857	2.47		
		EC40	3.17	2.26	4.39		
		EC50	4.9	3.31	7.28		

## 10-Day Mortality Rate Summary

C-ng ai/bees	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	4	0.075	0	0.227	0	0.2	0.0479	0.0957	128.0%	0.0%
0	Negative Control	4	0.075	0	0.227	0	0.2	0.0479	0.0957	128.0%	0.0%
1.17		4	0.05	0	0.209	0	0.2	0.05	0.1	200.0%	-2.7%
1.85		4	0	0	0	0	0	0	0		-8.11%
2.51		4	0.125	0	0.325	0	0.3	0.0629	0.126	101.0%	5.41%
4.87		4	0.725	0.397	1	0.5	0.9	0.103	0.206	28.4%	70.3%
7.26		4	1	1	1	1	1	0	0	0.0%	100.0%

## Food Consumption Summary

C-ng ai/bees	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Solvent Blank	4	38.1	34.1	42.2	34.6	40.6	1.27	2.53	6.64%	0.0%
0	Negative Control	4	38.2	25.6	50.7	32.2	49.6	3.94	7.88	20.6%	-0.07%
1.17		4	32.9	26.4	39.4	27.5	37	2.03	4.06	12.3%	13.7%
1.85		4	27.2	24	30.4	25.6	30	0.993	1.99	7.3%	28.7%
2.51		4	20.8	15.9	25.8	18.6	25.4	1.54	3.09	14.8%	45.3%
4.87		4	23	18	28	18.5	25.3	1.56	3.12	13.6%	39.7%
7.26		4	14.4	-1.41	30.3	5.8	27.5	4.98	9.97	69.0%	62.1%

**CETIS Summary Report**

Report Date: 04 Apr-17 10:28 (p 2 of 2)  
Test Code: 50084901 dose | 19-6761-1402

**Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study****Eurofins Agroscience Service GmbH****10-Day Mortality Rate Detail**

C-ng ai/bee	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Solvent Blank	0.1	0.2	0	0
0	Negative Control	0	0.2	0	0.1
1.17		0	0.2	0	0
1.85		0	0	0	0
2.51		0.1	0	0.1	0.3
4.87		0.9	0.9	0.5	0.6
7.26		1	1	1	1

**Food Consumption Detail**

C-ng ai/bee	Control Type	Rep 1	Rep 2	Rep 3	Rep 4
0	Solvent Blank	38.9	40.6	38.4	34.6
0	Negative Control	36.9	32.2	33.9	49.6
1.17		27.5	37	34.7	32.4
1.85		25.6	26	27.2	30
2.51		20	18.6	19.4	25.4
4.87		25.3	18.5	23.3	24.9
7.26		5.8	16.9	27.5	7.6

# CETIS Analytical Report

Report Date: 03 Apr-17 21:20 (p 1 of 1)  
Test Code: 50084901 conc | 06-5424-0163

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH		
Analysis ID:	07-4145-8418	Endpoint:	10-Day Mortality Rate	CETIS Version: CETISv1.8.7		
Analyzed:	03 Apr-17 21:17	Analysis:	Untrimmed Spearman-Kärber	Official Results: Yes		
Batch ID:	05-9233-5042	Test Type:	2014 Honeybee Adult Chron Oral	Analyst:		
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d	Diluent:	Deionized Water	
Ending Date:	23 Mar-17 14:02	Species:	Apis mellifera	Brine:		
Duration:	309d 14h	Source:	Local Apiarist	Age:		

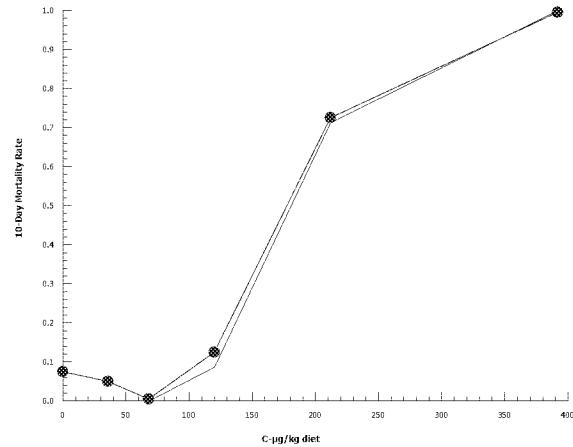
## Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.075	0.00%	2.26	0.0214	180	163	199

## 10-Day Mortality Rate Summary

C- $\mu$ g/kg die	Control Type	Count	Calculated Variate(A/B)								
			Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.075	0	0.2	0.0479	0.0957	128.0%	0.0%	3	40
35.7		4	0.05	0	0.2	0.05	0.1	200.0%	-2.7%	2	40
68		4	0	0	0	0	0		-8.11%	0	40
120		4	0.125	0	0.3	0.0629	0.126	101.0%	5.41%	5	40
212		4	0.725	0.5	0.9	0.103	0.206	28.4%	70.3%	29	40
392		4	1	1	1	0	0	0.0%	100.0%	40	40

## Graphics



# CETIS Analytical Report

Report Date: 04 Apr-17 10:28 (p 1 of 1)  
 Test Code: 50084901 dose | 19-6761-1402

Special Study Honey bee Adult Chronic Oral Toxicity, 10-day Study				Eurofins Agroscience Service GmbH	
Analysis ID:	01-6034-7727	Endpoint:	10-Day Mortality Rate	CETIS Version:	CETISv1.8.7
Analyzed:	04 Apr-17 10:24	Analysis:	Untrimmed Spearman-Kärber	Official Results:	Yes
Batch ID:	07-9670-7022	Test Type:	2014 Honeybee Adult Chron Oral	Analyst:	
Start Date:	18 May-16	Protocol:	Honeybee Adult Chronic Oral Toxicity, 10-d	Diluent:	Deionized Water
Ending Date:	10 Jul-16	Species:	Apis mellifera	Brine:	
Duration:	53d 0h	Source:	Local Apiarist	Age:	

## Spearman-Kärber Estimates

Threshold Option	Threshold	Trim	Mu	Sigma	EC50	95% LCL	95% UCL
Control Threshold	0.075	0.00%	0.592	0.019	3.9	3.58	4.26

## 10-Day Mortality Rate Summary

Calculated Variate(A/B)											
C-ng ai/bee	Control Type	Count	Mean	Min	Max	Std Err	Std Dev	CV%	%Effect	A	B
0	Negative Control	4	0.075	0	0.2	0.0479	0.0957	128.0%	0.0%	3	40
1.17		4	0.05	0	0.2	0.05	0.1	200.0%	-2.7%	2	40
1.85		4	0	0	0	0	0		-8.11%	0	40
2.51		4	0.125	0	0.3	0.0629	0.126	101.0%	5.41%	5	40
4.87		4	0.725	0.5	0.9	0.103	0.206	28.4%	70.3%	29	40
7.26		4	1	1	1	0	0	0.0%	100.0%	40	40

## Graphics

